THE IRON AGE

A Review of the Hardware, Iron and Metal Trades.

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THE IRON AGE.

THURSDAY, MARCH 23 1899.

Machine for Molding Steam Pumps.

Henry E. Pridmore, manufacturer of the Pridmore molding machines, 111 and 113 West Harrison street, Chicago, is introducing a machine designed especially for the molding of steam pumps, large water and gas pipe fittings, valve and motor bodies, and other large thick castings. The requirements of this class of work demand a machine which in the first place should have a very long draw, as all of the parts named have long straight faces in flanges which necessitate a long true draw to remove them from the sand; second, the molds should be made as close to the floor as possible, on account of the extra hight of the patterns, requiring flasks of great depth to properly carry the sand; third, on account of the great weight of patterns and the great depth of flasks the machines should be very strongly built. In presenting this machine Mr. Pridmore believes that he has satisfied all of these requirements and has produced a machine well adapted to this class of work. The cuts show a set of the 20 x 30 inch machines both with the patterns mounted and without the patterns, the latter to show the construction of the machines. Two of the views show the yoke which carries the pattern up in the position it occupies when the mold is being rammed, and the other views show the yoke down in the position it occupies after the pattern has been drawn from the sand.

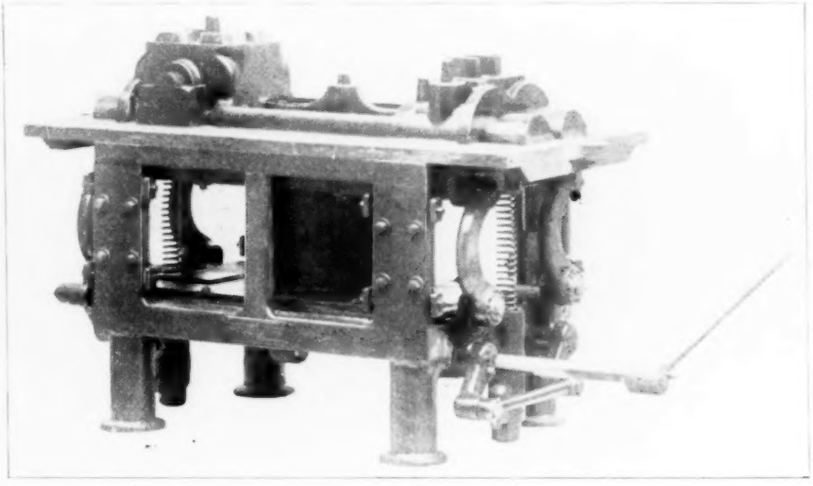


Fig. 1. Patterns in Position for Molding.

The frame and legs of the machine are one heavy casting, so designed as to be absolutely rigid and capable of carrying any weight of pattern and mold without springing, and yet well proportioned and of symmetrical appearance. The yoke which carries the patterns is a second large single casting with the gib ways at each corner cast with it. Through the frame of the machine are two heavy parallel shafts, and at each end of these shafts close to the frame of the machine are firmly keyed four pairs of double cranks. On the upper ends of each of these cranks are mounted the pitmans, which connect with the

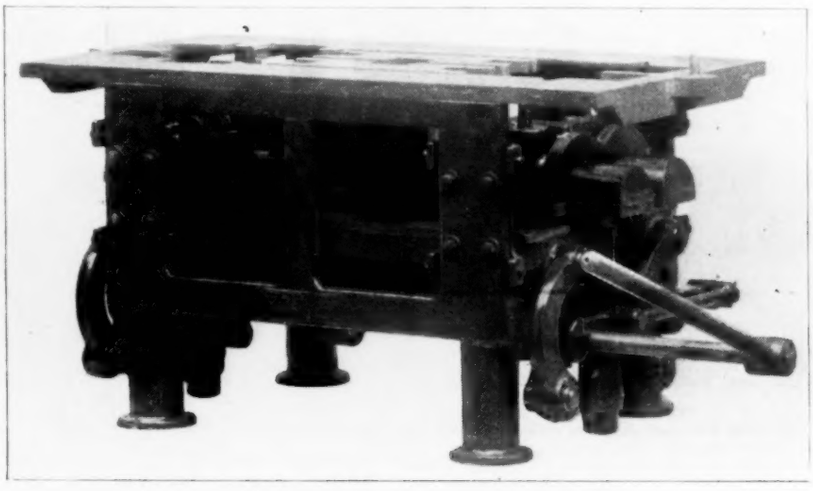


Fig. 2. Pattern Drawn.

MACHINE FOR MOLDING STEAM PUMPS.

four corners of the yoke. On the lower ends of the cranks are connecting rods extending to the opposite corners. The connecting and raising and lowering cranks are cast in one to prevent any possibility of shifting. The two sets of lower cranks at each end of the machine are set at right angles to each other, thereby furnishing through the connecting rods a perfect rotary motion simultaneously to each shaft.

rough hard usage which all machines in foundries must be capable of doing.

These machines are built in a wide range of sizes, the regular sizes being 18, 24, 30, 36, 42, 48 and 60 inches square, all with 8-inch draw. It will be observed in the illustrations that the ends of the frames are left open, thereby permitting the use of long patterns. Besides the regular sizes machines of this type have been built 20

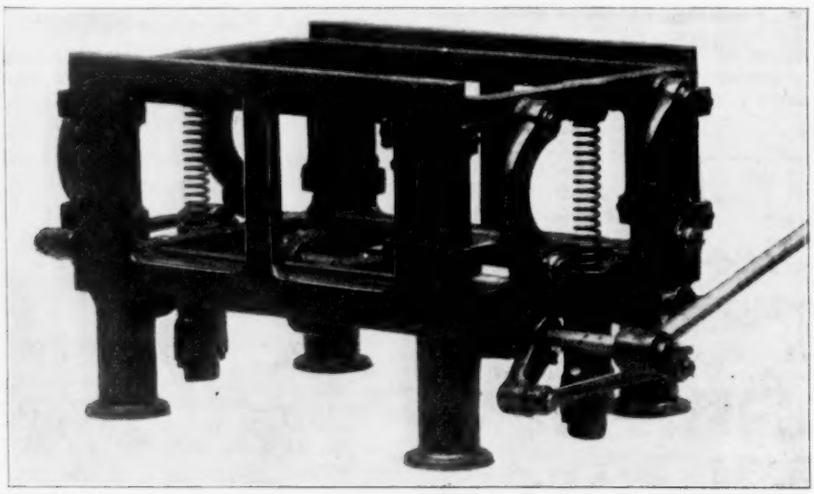


Fig. 3.—Bare Machine with Parts in Position to make the Mold.

Among the other valuable features of the machine are the springs in sockets located centrally at each end of the frame. The bottoms of the sockets are removable so that the springs can be changed according to the weight of the pattern to be used in the machine. In the foundry of Henry R. Worthington, Brooklyn, patterns are in use on these machines weighing almost 2000 pounds. Of course a pattern of this weight will require exceedingly stiff springs to perfectly counterbalance it. And when a pattern of, say, 500 pounds weight is used, it is of course desirable that the heavy springs used under the heavier pattern should be changed to lighter springs. Other valuable points are the adjustable gibs and the adjustments in the lower ends of the pitmans for taking up wear in the crank or yoke pins. With these latter adjustments it is always possible to keep the four corners of the yoke within the fraction of 1-100 inch of the distance to which they are set from the top of the frame. The machines are simple and substantial, and adapted to withstand the inches square, 20 x 30, 24 x 30, 24 x 42, 30 x 48 and 36 x 42 inches.

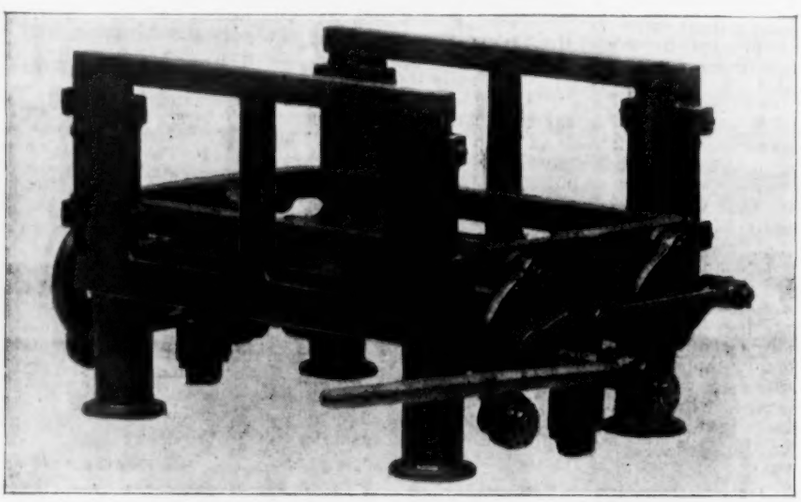


Fig. 4.—Bare Machine with Parts in Position they Occupy when Patterns are Drawn.

MACHINE FOR MOLDING STEAM PUMPS.

In anticipation of the biggest ore shipping season yet known the Carnegie Company have begun to instal at their docks at Conneaut Harbor, the lake terminus of the Pittsburgh, Bessemer & Lake Erie Railroad, eight modern conveying and loading machines, made by the Brown Hoisting & Conveying Company of Cleveland, Ohio, and two Thew automatic shovels of special design for use in loading from stock piles to cars. This equipment, added to that already in place, will give the Carnegie Company ample facilities for the prompt disposition of ore intended for the Pittsburgh furnaces and of the coal consigned to the Northwest lake ports, which will be transported to the docks in the ore cars on their return trips.

The directors of the American Tin Plate Company, after their meeting in Chicago on Wednesday, announced a quarterly dividend of 1¾ per cent. on the preferred shares of the company. No dividend on the common stock will be paid, it is understood, in the first year.

Industrial Conciliation in England.*

BY SIR DAVID DALE.

The first difficulty I have usually experienced in seeking to bring about the peaceful solution of a labor question has lain in the reluctance of the employer class, and of what might be called influential public opinion, to recognize the justification of a men's union. This, probably, arises from a survival, in the form of a latent prejudice, of the ideas and the policy which, till the year 1871 rendered trade combinations of workmen illegal. And as prohibitive legislation gave to secret combinations a character—in many cases—of violence, the prejudice was deepened thereby.

To these influences must be added, in the case of employers, feelings varying with the character of each employer: with a few, unreasoning resentment of whatever may lend strength to the workmen's claims; with many, a genuine belief that the employer should be trusted to do what is fair, and that therein are to be found the conditions most favorable for carrying on the trade to the advantage of the employed as well as the employer.

This prejudice has been mainly overcome by its being shown that unions have sprung—I believe in most cases—from its being found convenient by the employers to treat the men employed as a class whose wages, hours of labor and conditions of service varied for the class, and not merely for the individual, with varying conditions of trade. This made it not only desirable, but needful, that the workmen should have an organization to consider and determine on their behalf whether the reduction or advance of wages, or the variation of hours or the other changes proposed by the employers were reasonable.

From this tardily conceded admission there is now developing a recognition that not only is a union a reasonable institution, but that it is in large organized trades an essential authority to secure the due observance of wages compacts or awards, and that hence it is to the interest of the employer that membership of the union should be as wide and general as possible—that all the employed should, by being members, be bound by the agreements come to between the employers and the union. This, not unnaturally, suggests the question of whether an employer should be required, or should consent, to dismiss from employment any man who has not chosen to join the union.

Compulsion of Employers.

Although I hold unions to be desirable and needful, and regard their usefulness as proportionate to their numerical strength, I cannot approve of the employer being made to compel men to join. Apart from other objections, it seems to me that it is, from a trade unionist point of view, unsound and dangerous to treat the employer as having a moral right to say to any of the men employed by him, "You must belong to the union if you continue in my employment." That seems to admit conversely the employer's right, if so minded, to say, "You must not belong to the union if you continue in my employment." A union that cannot sustain its existence or its influence without resorting to pressure of this sort has some inherent weakness in its constitution or in its management. This becomes more clear when we consider the wonderful readiness of the individual worker to disregard his own immediate personal interests when they seem to be at variance with the permanent interests of his class.

We have heard much of the folly, and even of the wickedness, of a great and prolonged strike, entailing privation and suffering—homes stripped of their slowly acquired and much prized household necessaries, the cold hearth and the empty cupboard; but is there not another aspect, a certain heroism, which accepts present suffering for future advantage, which renounces that which is easiest, and which might be turned to the advantage of the individual, for the sake of a common cause and the interests of the class? No such self renunciation as this is, in my experience, exhibited by any other class of the community. With such generally prevailing tendencies to work upon, I regard it as not only unwise and unfair, but unnecessary, to apply compulsion to the limited number of men in any trade who abstain from joining their trade union.

Refusal to Meet Outsiders as Union Officers.

The next difficulty usually experienced in bringing about satisfactory relations between employers and employed arises from the employers' refusal to meet, for discussion and negotiation, the officers of a union who may never have been, or who (as is more generally the case) have ceased to be, actually employed in the industry which the union represents. This refusal has, in many cases, added to the orginal question at issue a new contention, arousing feelings which have long stood in the way of good relationships. It ought not to be necessary to point out that the scale of modern industrial enterprise requires that the affairs of any important union should be attended to by one or more persons giving their whole time to the affairs and interests of that union.

The idea of trades union officers being mischievous agitators is, no doubt, fast disappearing, but it still prevails to an extent that requires refutation, and justifies a statement of their useful and needful functions. And here let me say that a very large experience has shown me that, in proportion as the union is recognized and cordially accepted, not only by the employer class but by the general public, are the men of most intelligence and reasonableness selected by their fellows to manage the affairs of the union, and to guide its policy.

Such men, however, have generally sooner or later to encounter serious difficulties. Their fair mindedness and reasonableness are certain to be resented by the more ignorant and extreme men who are found in every association—rivals coveting the position of the union official intrigue against him and represent his moderation as a corrupt sacrifice of the men's rights in the interest of the employer. The union official must possess great force of character, must not be oversensitive, must be indifferent to the tenure of his position, to withstand these adverse influences. If he has not the courage and determination to quell insubordination or intrigue he must either retire or succumb and maintain his position by becoming the agent of a policy of which he disapproves. Herein lies one of the most serious risks which trades unionism has to encounter.

When, in any industry, the stage has been reached of the employers accepting the men's union cordially, and recognizing the men's right to accredit any persons as their spokesmen and representatives, the problem presents itself of how any questions arising from time to time between the two interests of capital and labor shall be adjusted.

Standing Joint Committees.

Subject to special variations to suit the character of different industries, it has been found most important to create a standing joint committee, composed of an equal number of employers or their representatives and of employed or their representatives. It should be provided that all claims for varying the conditions of work should be referred to this committee, with power to decide thereon. It is convenient and desirable that this committee should be presided over by a permanent chairman, unconnected with the industry, who shall have a casting vote. If there be no such chairman, it should be obligatory to refer to arbitration any question on which there is an equality of votes at the joint committee. These joint committees not only provide a machinery for the peaceful solution of labor questions, but they create feelings of mutual respect and confidence. They enable each side to understand the claims and the difficulties of the other. They greatly diminish, if they do not entirely remove, that which frequently contributes to create, or, at least, to embitter, trade disputes, the adoption by foremen and managers of a tone toward the men under them inconsistent with those men's self respect. The joint committee not only affords the opportunity of making known cases of this sort, but it acts as an example to all subordinate managers when it exhibits to them employers and employed meeting on terms of equality and mutual respect.

It is sometimes thought more prudent to exclude from the joint committee's absolute authority very important changes of wages or hours, or other conditions of service affecting an entire district, but this should merely lead to provisions being made for a fuller court of inquiry and a more important form of arbitration. And here I may be permitted to say that the acceptance of the function of an umpire or sole arbitrator by men of distinction is amply justified by the vastness of the interests which are frequently at stake, and by the roll of eminent men who, taking this view, have acted from time to time as umpires.

Sliding Scales.

The character of many industries enables wages to be regulated by a sliding scale. To render this a prudent course, it must be shown that the wages of that industry have varied in some steady relation to the selling price of the commodity produced. Where this is the case, a sliding scale has much to recommend it. It furnishes to the workmen absolutely reliable information, usually extracted by public accountants, appointed by themselves, from the books of the employers. It thus guards the workmen equally against seeking to enforce claims that cannot be sustained and against failing to obtain an advance in wages which the state of their trade may justify.

These sliding scales worked well for many years in the pig iron trade and the manufactured iron trade of the north of England, in the coal industries of Durham and Northumberland, in the iron stone mines of Cleveland, in South Wales and in many other important localities and trades. They have recently been terminated by the workmen in some of these industries without any very definite

*From a paper read before the Industrial Conference of the Labor Association.

reason being assigned, but they well deserve consideration as a machinery tending to secure, promptly and automatically, an adaptation of wages to varying conditions of trade.

I wish I could say that when the road of peaceful industrial arrangement, as described above in its various stages, had once been entered upon it was never left, but this is not in accordance with observation and experience There are indications in some of those industries which entered upon that road earliest and have pursued it longest that a new generation of workmen have not inherited their fathers' experience of how much more may be gained by negotiation or arbitration than by strife or strike. This new generation is showing evidence of a disposition to repudiate engagements, to resist the authority of the union council, to question the genuineness and good faith of prices ascertained by independent accountants, and generally to show itself impatient, unreasonable and distrustful. This may lead, soonor or later, to a period of conflict before wise counsels prevail and before a new generation has gained its own experience and returned to the condition of disciplined unions and peaceful, though vigilant, modes of securing its interests. For this there will not, I believe, be required anything like the same time and the same amount of education as was needed in earlier generations. The retrograde movement more resembles the receding wave in an advancing tide.

It is dwelt upon because it is a feature in industrial development not to be overlooked, and, more especially, in order that it may not, when it exhibits itself in any industry which has seemed to have emerged from conditions of strife, be regarded too seriously or too discouragingly.

The freedom accorded to English labor to organize, to act on these lines, to have its union funds protected—the recognition which it has gradually secured from employers—the support which is accorded to it by public opinion, so long as it keeps within lines of natural justice, have all tended to avert from England that form of socialism which is occasioning so much anxiety in Continental Europe. Every member of the community has an interest in encouraging the English method of revolution, and in affording no justification for the Continental method of revolution.

Molders' Wages Advanced.

The Defense Association and the Molders' Union Agree to an Increase of Ten Per Cent.

The usual conference over molders' wages for the coming year was held in the Auditorium Hotel, Chicago, on Wednesday of this week. The Stove Founders' National Defense Association was represented by

C. H. Castle, Quincy, Ill., president.

Henry Cribben, Chicago, vice-president.

A. C. Mott, Philadelphia; Jeremiah Dwyer, Detroit; George H. Holland, St. Louis; E. W. Peck, Rochester, and Thomas J. Hogan, Chicago, secretary of the association.

The Iron Molders' Union of North America was represented by

Martin Fox, Cincinnati, president.

David Black, Cincinnati; Martin Monahan, Albany; J. O'Neill, Detroit; W. C. Gray, Quincy, and Thomas Carr, Chicago.

The molders thought their wages should be advanced 15 per cent. because of general prosperity throughout the country, but in reply the manufacturers pointed out that the molders' wages had not been reduced during all the depression, and that while working days had been reduced by the dull times this was as unprofitable to the employers as it was to the workmen. The conference continued until nearly midnight, when a compromise was agreed to by which the molders' wages will be advanced 10 per cent., to take effect April 1. Secretary Hogan says this is the first case since the conference agreement was entered into by the two organizations that an increase had been granted without a hard fight, and the best of feeling now exists on both sides.

A further increase of 10 per cent. in stove prices is assumed on account of increased wages, as the former advances were made to cover dearer material, and would prove insufficient to meet the increased cost due to higher wages.

The Lalance & Grosjean Mfg. Company, New York City, have awarded the contract for the new enameled ware addition to their large factory at Woodhaven, L. I., rendered necessary by the rapid growth in this branch of their business. The plans show a more spacious building than was at first contemplated. It will be situated on the block east of their present group of factory buildings, on ground already owned by the company, and will cover an area of 200 x 400 feet. The building, which is to be a one-story structure, will be devoted entirely to the extension of the enameled ware manufacturing department of the works. It will be divided into rooms for black iron and riveting, assorting and papering, pickling, nickeling and dipping, in addition to a large space devoted to drying racks, having a capacity of 80,000 pieces of enameled ware a day, and a row of 20 firing muffles, which, with 36 located in the main building, will give the works a total of 56 muffles The new addition will give the Lalance & Grosjean Mfg. Company a potential output of over 100,000 pieces of enameled ware daily.

England's Steel Production.

The British Iron Trade Association has just published the statistics of the production of Bessemer and open hearth steel in Great Britain.

Bessemer Steel.

In the year 1898 the total production of Bessemer steel ingots in Great Britain amounted to 1,759,386 tons, against 1,884,155 tons in the previous year, being a decrease of 124,769 tons. More than the whole amount of this decrease appears to have taken place in South Wales, where the production of ingots was only 319,891 tons in 1898, against 495,370 tons in the previous year. There was also a fall in the Cleveland district from 415,464 tons to 386,994 tons, while on the West Coast and in Cheshire the difference between the two years was 38,285 tons in favor of 1898. The output has been prejudiced in several ways, but notably by the reduced demand for railway material and by the prolonged strike of coal miners in South Wales. Bessemer steel is also continuously affected by the increased demand for open hearth steel and the constantly increasing resources provided to meet it. The output of the several districts was as under:

I.—The British Production of Bessemer Steel Ingots in 1897 and 1898.

District.	1897. Tons.	1898. Tons.
South Wales	495,370	319,891
Cleveland	415,464	386,994
Northwest Coast and Cheshire	542,648	580,933
Sheffield and Leeds	289,929	344,261
Staffordshire, Scotland and Shropshire	140,744	127,307
Totals	1,884,155	1,759,386

The total quantity of acid Bessemer steel ingots produced in 1898 was 1,255,252 tons, while the output of basic Bessemer steel ingots in the same year was 504,134 tons. The quantities of both produced in the different districts are shown in the next table:

II.—Quantities of Bessemer Basic and Acid Steel Ingots Produced in 1898.

District	Acid. Tons.	Basic. Tons.	Total. Tons.
South Wales	319,891	.....	319,891
Cleveland	89,879	297,115	386,994
West Cumberland	335,344	6,160	341,504
Sheffield and Leeds	270,709	73,552	344,261
Lancashire and Cheshire	239,429	.....	239,429
Staffordshire, &c.	.....	127,307	127,307
Totals	1,255,252	504,134	1,759,386

Bessemer Steel Rails.

The make of Bessemer steel rails in 1898 was 169,540 tons less than that of the preceding year, mainly as a result of the strike in South Wales, where alone there was a decrease of 107,363 tons. There was also a decrease of 43,847 tons in the Cleveland district, while the make of Staffordshire, Shropshire and Scotland appears to have fallen almost to zero. The details follow:

III.—Make of Bessemer Steel Rails in the United Kingdom in Each of the Years 1897 and 1898

District.	1897. Tons.	1898. Tons.
South Wales	217,056	107,693
Cleveland	222,366	178,519
Northwest Coast	353,299	341,388
Sheffield and Leeds	110,210	123,824
Staffordshire, Shropshire and Scotland	18,200	167
Totals	921,131	751,591

Open Hearth Steel.

The total quantity of open hearth steel ingots produced in the United Kingdom in 1898 amounted to 2,806,600 tons, which is an increase of 204,794 tons on the quantity produced in the previous year. The largest contribution to this increase was made by Scotland, which advanced from a make of 812,695 tons of ingots in 1897 to one of 948,120 tons in 1898—an advance of 135,425 tons. The Northeast Coast made the next most important advance, with an increase of 100,799 tons on the make of 1897. Compared with these great strides, the increase in the other districts was relatively unimportant. Wales, indeed, has fallen from 415,659 tons in 1897 to 320,500 tons in 1898—a decline of 95,159 tons, which is mainly due to the great coal strike, but is also

partly owing to the depression in the tin plate industry, which continues. But for these factors the Welsh make of open hearth steel would have been much larger. The details for the several districts are appended:

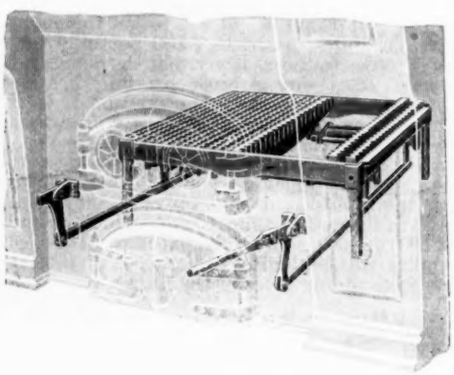
I.—British Production of Open Hearth Steel Ingots in 1898, Compared with 1897.

District.	1897. Tons.	1898. Tons.	Increase (+) or decrease (—) in 1898. Tons.
Northeast Coast	895,313	996,112	+ 100,799
Scotland	812 695	948,120	+ 135,425
Wales, South and North	415,659	320,500	— 95,159
Sheffield and Leeds	189 050	211,371	+ 22,321
Lanca-hire and Cumberland	119 562	152,001	+ 32,439
Staffordshire, Che-hire, &c.	169,527	178,496	+ 8,969
Totals	2,601,806	2,806,600	+ 204,794

Of the total make of open hearth steel ingots in 1898, 2,590,512 tons were acid and 216,088 tons were basic, showing that the output of acid steel is about 12 times that of the basic variety. The limited quantity of basic steel made in the Cleveland district and in Scotland is remarkable, and not less noteworthy is the fact that the Sheffield and Leeds districts have produced the largest quantities of this description.

The Sennett Rocking Grate.

The Geo. B. Sennett Company of Youngstown Ohio, are putting on the market a rocking grate. The grate stands on legs independently of the boiler walls and may be set



THE SENNETT ROCKING GRATE.

up under any boiler without disturbing the brick work. The frame consists of flat bars of cast iron bolted to the legs at the corners and having an extra heavy center bar running lengthwise, dividing the frame into two independent sections. There are two rockers in each of these sections, supported on lugs cast on the center bar and side frames. They are connected below by shaker rods, as shown, so that the rockers in each section move together. The grate bars rest on these rockers, each bar being supported independently of all the others, thereby preventing any tendency to excessive friction and wear from the bars leaning on each other. The bars are provided with square teeth which project on each side, the teeth of one bar coming between the teeth of the adjacent ones and forming between the bars an irregular broken air opening. This arrangement secures the maximum proportion of air space to grate surface for a given opening between bars, a point of great importance wherever hot fires are required for working the boilers up to their full capacity. The grate bars are all duplicates and any bar can be removed without disturbing any of the others. Only half of the grate is worked at one time, leaving the other half to be shaken or not according to circumstances. The grate is operated by a lever handle which is slipped on over one of the bell crank levers on the boiler front. A movement of a foot or 18 inches at the end of this lever is all that is required for shaking the grate and the leverage is such that the grate operates easily. With the up and down motion of the bars there is a small movement endwise which tends to crush or separate any soft cinder which may be in the process of forming a large clinker and to reduce it to small fragments, which ultimately are sifted down through the grate without clogging the draft. The action of the grate is to lift the bed of fire in parallel lines first along one set of grate bars and then along the alternate ones, thereby entirely breaking up the whole fire and allowing air to draw freely through it. Under these circumstances the tendency to form clinkers is diminished, as they are more liable to be formed with a clogged fire and imperfect combustion than when everything is going briskly. As all operations are done with closed doors no cold air is drawn in for a prolonged period, as is usual when cleaning fires with stationary grates, and the boilers are thereby much less liable to become leaky.

Central American News.

TRUXILLO, HONDURAS, CENTRAL AMERICA, March 2, 1899.—The recent revolution on this coast, in Mosquito territory, has served as a setback to would-be filibusters of foreign birth, and proven palpably what I stated in one of my former letters, that however much these people may fight among themselves, they will surely unite against a foreign invader. Again, such enterprises as that of the Rams expedition of so-called "rough riders" does unlimited damage to our commerce in these countries, and tends to throw it into the hands of England and Germany. Their actions have also given a certain color to the fear they have more than once expressed in Nicaragua that any concessions of territory to the United States for canal purposes would be the first step toward annexation. It is this which has given unwonted activity to the British Consuls and Minister in Central America, and if our representatives are not wide awake a treaty may be signed any day by which Great Britain gets at least similar rights in the canal with the United States. Minister Jenner has served England for a quarter of a century in these Spanish-American countries, and is a man, therefore, of large experience, and has been working for quite a while on the Nicaraguan and other Central American Governments with the above end in view. Salvador is now making arrangements with the British bondholders to continue the work on the Salvador & Santa Ana Railway, which is intended to eventually connect with the Northern of Guatemala. It is probable that the new head of the Government, General Regalado, will cause a round sum (perhaps, $150,000) to be paid annually to the company as a guarantee. By the way, the President of Salvador is a good friend to Americans, and it seems a pity that some of our enterprising capitalists should not take a hand in the railroad, bridge building and mining now going on in the little republic. C. P. Huntington, who is the principal owner of the Guatemala Central, is trying hard to get the Guatemala Northern, now under construction. If he should succeed, he would have an interoceanic line from San José on the Pacific, through the high plateaus on which Guatemala city is situated, to the Atlantic at Puerto Barrios. This line would be about 300 miles long, and would traverse one of the most fertile countries on the continent. Two-thirds of the line are constructed and in operation, though one-third of it is sadly in need of repairs. The price which the Government wanted for this road a few years ago was $14,000,000. If they can get half of this they should take it, as the starting up of work on the road would be the only way to avert a revolution, so arbitrary and unbusinesslike in all his methods is the present incumbent.

The Pacific Mail Steamship Company, who, for upward of half a century, have had a monopoly of the Pacific and Central American trade, have at last a powerful rival in the Chilean line. This is a combination of the British "Pacific Steam Navigation Company" and the "Compañia Sud-Americana." So far five steamers have been put on between Valparaiso, Chile, and San José de Guatemala. They touch at Panama and the principal ports of Costa Rica, Nicaragua, Honduras and Salvador, their northern terminus being Ocos, Guatemala. The Pacific Mail have begun to feel the effects of this competition, and they have in serious contemplation a move into the enemy's territory—that is, to continue their San Francisco line southward from Panama to Callao, Peru, and eventually to Valparaiso, Chile.

I would recur once again to the absolute necessity of our business houses sending out well-equipped agents to Spanish America. Now I do not mean merely men who are loaded down with price-lists and catalogues, but experienced travelers, thorough in their own particular line, but also good linguists, who know the language of the 19 republics south of us—Spanish. I cannot insist too much on this, or the need of their knowing the weights and measures and the money of these people. Let them study the methods and peculiar needs of the Spanish-American, who does a yearly business one way and another, valued at over half a billion of dollars. The Germans and the British, who have been in this field for half a century or more, know these points, and practice them to perfection. Why should we ignore them? And if we insist on doing so, can we consistently complain because we only get one-tenth of Spanish American trade? Two British companies are trying to get concessions to work the gold placers on the Patuca and the Rama, the latter in Nicaragua. The nuggets are found mostly in pockets, and most of the gold is coarse. In former years large amounts were taken from both these

rivers by the common pan and rocker process. The new companies propose bringing in dredges and perfected mining machinery. C.

Canadian News.

A Coal and Iron Proposition.

TORONTO, March 17, 1899.—A bill has been introduced into the Nova Scotia Legislature, the object of which is to secure a substantial benefit for the newly organized Dominion Steel & Iron Company. The measure in question is to obtain exemption on so much of the output of the Dominion Coal Company as will be used by the Dominion Steel & Iron Company, from the royalty now imposed by the Province. That royalty is 12 cents per ton, at which rate it was fixed in the provincial act incorporating the Dominion Coal Company. As the Dominion Coal Company and the Dominion Steel & Iron Company are practically identical in composition, they will have no difficulty in acting together to secure this object, which would be of benefit to both. The proposition of the Dominion Steel & Iron Company is that the royalty on their consumption of the Dominion Coal Company's coal be remitted for five years. If this concession is granted the company will undertake to erect a $3,000,000 plant in Cape Breton for the production of pig iron, steel, &c., and to commence work on this plant before August 1. This proposal did not meet the approval of the Provincial Government, which submitted another to which it would probably agree. Instead of granting exemption from the whole royalty for five years the Government suggested exemption from half the royalty for eight years. The bill was framed accordingly and is now before the Legislature. Mr. Whitney's company propose to manufacture steel and iron, not merely for the Canadian market but also for the European, and especially the British market. By a resolution of the Cape Breton County Council they are already assured of exemption from municipal taxes for 30 years. If they can get half the royalty on the coal they consume waived for eight years that will be a handsome contribution from the Province, while from the Dominion they have a customs duty of $2.50 per ton in their favor and a bounty of $3 per ton on the proportion of iron produced from Canadian ore, along with a bounty of $2 per ton on the proportion produced from imported ore. If the company use only ore brought from Newfoundland their bounty will be $2 per ton, as Newfoundland is outside of the Dominion. On puddled bars the bounty is $3 per ton, the condition being that the iron be made in Canada, no matter where the ore comes from. On steel ingots manufactured from ingredients of which not less than 50 per cent. of the weight consists of pig iron made in Canada the bounty is $3 per ton. But the permanence of the bounties is uncertain, and the act provides that they shall be payable only on product made in Canada prior to April 23, 1902. The Dominion Steel & Iron Company, it is stated, will make an effort in the present session of the Dominion Parliament to secure an extension of this period.

Fuel Oil.

Another deputation of oil men waited on the Ottawa Government a few days ago. This one came to oppose the petition of the manufacturers that fuel oil be placed on the free list. The statements of the manufacturers as to the existence of an oil producing monopoly, as to the Standard Oil Company having control, as to the impossibility of getting an adequate supply of fuel oil in Canada, &c., were all controverted. It was admitted that it was no longer possible to give as large a quantity as heretofore of the class of oil formerly used for fuel purposes, but a superior article is supplied. If manufacturers kept themselves better informed as to chemistry they would be able, it was claimed, to use oil of greater gravity by merely changing their burners, as was done in the United States, and providing a little more storage accommodation. At present the manufacturers, according to the oil men act too much on the hand to mouth principle, and it is found difficult to ship fuel oil to them in frosty weather, the oil being hard to handle then. Out of 800,000 barrels of crude oil, the deputation declared, only about 20,000 barrels are controlled by parties associated with the Standard Oil Company. It was further stated that the refining of oil in Canada is in the hands of the Imperial Oil Company, who have absorbed the Standard Company's interests.

Toronto as an Iron Center.

Concerning Toronto's advantages for the manufacture of iron and steel, a man very well informed on the subject writes thus to the Toronto *Globe*: "There are in Northwestern Ontario, in the Port Arthur neighborhood, iron ores just as rich, valuable and exhaustless as those of Northern Michigan and Minnesota, which supply the raw material for the blast furnaces of Chicago, Cleveland and Pittsburgh. But to develop and operate successfully requires a capital of millions—from $5,000,000 to $15,000,000. If iron ore can be freighted from the south shores of Lake Superior to Chicago and there converted into steel plates, and then shipped via lake vessels to Midland and the Grand Trunk to ocean ports, thence to Belfast to be framed into the 'Oceanic,' the rival of the 'Great Eastern,' as was done last summer, surely Toronto enterprise and energy should see its grand opportunity to develop its own enormous mineral resources of the northern shore of Superior in a similar way and on the largest scale."

Eastern Ontario Ores.

A. E. Carpenter, president of the Hamilton Blast Furnace Company, and John Milne, vice-president, have been looking over the iron mines about Modoc to see what is being done and what the season's prospects are. The ore at Coe Hill they have tried and found too high in sulphur for their purposes. At Modoc, which is much further south, there is considerable activity, shipments of ore being made daily. Malone, which is slightly north and west of Modoc, is also shipping ore, the Dufferin mine supplying 20 tons per day. All these places are on the Central Ontario Railway, and the demand for their ore comes from the Hamilton Blast Furnace Company, whose works consume about 300 tons of hematite and magnetite per day. Along the line of the Kingston & Pembroke Railway there is probably a greater abundance of good ore, and from the mines located on that line the Hamilton Company will also draw supplies. A lease of certain mines whose output is to be shipped to Hamilton has just been closed.

Rainy River Road.

A deputation waited on the Ontario Government the other day to ask further aid for the Ontario & Rainy River Railroad. The line has already received a provincial subsidy of $3000 per mile for the 208 miles between Port Arthur and Fort Frances. It was to get this increased to $4000 per mile and to obtain $4000 per mile for the remaining 75 miles to Rainy River that the deputation came to Toronto. A subsidy of $3000 per mile has also been granted by the Dominion Government, and it is expected that this will be increased to $6400 per mile because of the difficulties of construction. If both increases are conceded, the road will thus be bonused at the rate of $10,400 per mile. Twenty miles have already been constructed, and it is the intention to have the road completed in two seasons. In the event of the extra provincial bonus being granted 3000 or 4000 men will be put to work immediately, and 80 miles will be built this summer, giving access to the great iron mining fields of the Rainy River district.

Metropolitan Electric Company.

The contract for the works of the Metropolitan Electric Company at Britannia, near Ottawa, was awarded last week to Brewder & McNaughton of Ottawa. The works are to be built at Deschenes Rapids, which flow from that expansion of the Ottawa known as Deschenes Lake. At the outset 5000 horse-power is to be developed, but the company have in contemplation a future development of 28,000.

Trade Items.

The capital stock of the Verity Plow Company, Brantford, has been increased from $150,000 to $300,000.

An immense calcium carbide factory is to be built in connection with the great lumber mills of the Bronson-Weston Company, on the Chaudière, near Ottawa. It is to be operated by a 4800 horse-power electric plant. T. L. Wilson, who first produced calcium carbide, and who is the manager of the Wilson Carbide Works at St. Catharines, is said to be associated with members of the Bronson-Weston Company in the undertaking.

John R. Booth, one of the Ottawa Valley lumber kings, proposes to recover his saw dust from the river for the purpose, presumably, of manufacturing carbon by the Emerson process, now followed in the carbon works connected with the saw mills of the Edwards Company.

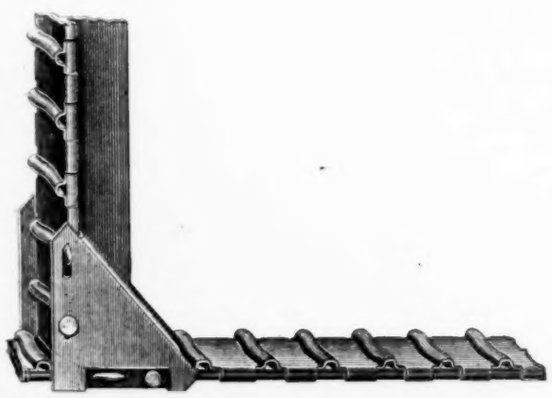
The molders employed in the works of the Verity Plow Company, Brantford, have gone on strike. Their demand of a 10 per cent. increase in wages was conceded, but they asked in addition to this that the price book of the company be accessible to them, in order that they could at any time compare the company's prices with their own on the various patterns. This was refused; hence the strike.

From the Zenith zinc mine, near Rossport, Ontario, 32 carloads of zinc ore (720 tons) were shipped to Antwerp, Belgium, a few days ago. C. A. C. J.

The following item, significant on the freight question, appears in one of the English newspapers: "The tender of Cammell & Co. for the supply of 10,000 tons of steel rails for the New South Wales Government has been accepted at £4 5s. 3d. per ton. A big American company quoted 8 shillings 3 pence a ton lower, but when the freight was added it was found that the English company were in a position to deliver at 11 shillings 3 pence below their American competitors."

Nailable Iron Studding and Furring.

A form of iron studding and furring possessing many features of interest to architects, builders and contractors is being placed upon the market by Thomas Curran of 74 Cortlandt street, New York City, and is illustrated in general view in the accompanying engraving. It is of such a nature as to well adapt it for use in connection with the metallic lath and sheet metal coverings generally, one of its important features being that no bolts or rivets are required, as all parts are nailed together. The studding consists of lengths of flat T or angle iron, as the case may be, to which are clamped by special machinery strips of sheet metal measuring about 1½ inches wide by 1-32 inch in thickness. In these strips, at intervals, are sinuous projections or corrugations, as shown in the engraving, these offering openings for the entrance of the wire nails which are employed in fastening the lath to the studding or furring. The corrugations being sinuous instead of straight, cause the nails when driven to take an irregular course, thus increasing the friction of the parts and preventing them from readily drawing out. In cases where great holding power is required the nails may be clinched on the opposite side. The illustration which we present represents two pieces of the prepared material fastened together at an angle by means of a sleeve nailed both to the upright and horizontal strips, the nails extending through the sinuous corrugations and to the opposite side, where they are clinched. The upright piece is of angle or T iron, such as is employed about door and window openings, where great rigidity is required. The flat horizontal strips are secured to the iron floor joists by means of clamps and the same method is



NAILABLE IRON STUDDING AND FURRING—VIEW SHOWING CONSTRUCTION AT AN ANGLE.

pursued for the ceiling. The furring for walls is nailed to the brick work in such a way as to leave an air space—a very desirable requisite in fire proof construction. In bringing this nailable studding and furring to the attention of the trade the manufacturer states that it is adapted to a wide range of purposes, such as pier sheds, portable houses, partitions, as well as in all places where it is desirable to employ sheet metal as a covering. It is pointed out that this form of construction effects a great saving as compared with other styles of studding and furring, while at the same time it affords a basis for strength and fire proof qualities which cannot fail to commend it to all those interested in building construction.

Basic Steel Production in Germany.—The Verein Deutscher Eisen und Stahlindustrieller has collected the statistics of the production of basic steel in Germany, the figures being in metric tons:

Year.	Basic Bessemer.	Basic Open hearth.	Total Basic steel.
1894	2,342,161	899,111	3,241,272
1895	2,520,396	1,018,807	3,539,203
1896	3,004,615	1,292,832	4,297,447
1897	3,234,214	1,304,423	4,538,637
1898	3,606,737	1,459,159	5,065,896

This does not include the output of acid steel, which, however, is relatively small, nor does it include steel castings.

A contract has been placed by the Fitchburg Railroad with a Pittsburgh company for the construction of what will be one of the largest ventilating fans in the world. It will be set in place at the western outlet and used to ventilate the Hoosac tunnel. The fan will be 16 feet in diameter and 8 feet wide, with a capacity of 600,000 cubic feet of air per minute.

Metals and Manufactures in Argentina.

There is not the slightest doubt that within recent months American competition is beginning to be seriously felt in the Argentine Republic in rivalry with the British, German, Belgian and French traders for the possession of those markets, and now that the American manufacturers have come to a realization of the desirability of an export trade, American influence will be more and more felt in the commerce of not only Argentina but all South America.

Although at present freight rates from New York to Buenos Ayres are in the main higher than those from European ports, American articles as good and sometimes better are sold at lower prices in the Buenos Ayres market than are the British and German products, due to the lower cost of manufacture.

No appreciable increase of American imports is to be noted in the Argentine statistics for 1897, just published, but in 1898 and the months of January and February of this year there is quite a heavy increase, and especially is this so as regards the six months ending February, 1899, of the imports of metals and manufactures thereof and electrical machinery and materials. In the city of Buenos Ayres great development has recently taken place, immense buildings having been erected, electric tramways built and equipped, the streets lighted by electricity, &c., and in the supplying of the materials necessary for these improvements the United States was called upon for no inconsiderable share. The builders' hardware supplied by the United States has met with great favor, largely due to the way in which it is put up, all fittings required being sent together and not in separate packages, as is the British and German method, so that were this advantage followed up a considerable trade could be secured by the American manufacturers of this class of hardware.

During 1898 Great Britain exported hardware to Argentina to the value of $298,365, Germany about $350,000 and the United States $207,459, besides minor exportations from Belgium, France and Italy, so that it is seen the trade is by no means an insignificant one and is well worthy of the attention of American manufacturers.

In fact a good demand exists there for imported steel rails and plates, joists, angles and T iron, barbed wire, hoop iron, cast iron pipes, galvanized iron and most of the materials used in the building trade, railway construction, bridge building, water works, &c. Of the bar, sheet, angle, hoop, bolt and rod iron importations Belgium and England may be said to practically supply the entire demand, but as an idea of the extent of the trade and sources of supply can best be gained by quoting reliable figures, the official Argentine statistics for 1897 (the latest published) are here given:

Iron, Crude —1897.

Germany	$51,692
Belgium	501,220
United States	5,810
France	8,810
Italy	12,720
Great Britain	602,397
	$1,272,049

As is seen, the United States occupied a very lowly position, but in 1898 hoop, bar and bolt iron, joists and T iron were largely imported from the United States, so much so that the British Trade Commissioner, in his report on Argentina, speaks of the United States as being the new chief competitor in these lines. In this report Mr. Worthington has no doubt given some very valuable information to his Government, but it is to be deplored that he did not spend sufficient time in the country to gain a personal insight into the conditions of trade there, as, by being compelled to rely on the Argentine statistics for 1896 (the latest then published), he has undoubtedly drawn several wrong conclusions.

In the galvanized iron trade Great Britain has practically a monopoly, and American manufacturers state that as long as the price of spelter remains at its present high figure there will be no competition from this country, but as it is always well to keep the extent of a possible trade in mind the importations for 1897 are here given:

Iron, Galvanized.

Germany	$20,952
Belgium	9,309
United States	49,763
Great Britain	1,399,479
	$1,479,503

Steel rails are almost exclusively imported from England, largely due to the fact that the railroads of Argentina have been built and are controlled by English capital. The managers of the electric tramways now being built in Buenos Ayres and of others that are only projected have, however, announced their intention of using the American 9-inch deep rail in preference to the 6-inch rail of English manufacture. Concessions have been obtained

and electric lines will soon be built by A. Parcus & Co., T. R. Betzel & Co. and Palmgren & Co., so that it would undoubtedly be of advantage to steel rail manufacturers to communicate with them.

Steel Rails.—1897.

United States	$137,825
Great Britain	1,885,684
	$2,023,509

In bolts and nuts, fish plates and materials for railways the United States has an increasing trade, although still quite small. In view of the fact that the United States is now exporting bolts and nuts at a profit to England and her colonies it would seem that with a little attention to the Argentine markets they could be gained to the American manufacturers. As regards fish plates and materials for railways, the United States must be able to supply them at greatly reduced prices in order to induce the British railroad director to purchase American manufactures in preference to the English products.

Bolts and Nuts.—1897.

Germany	$18,894
Belgium	57,740
United States	5,287
France	16,913
Great Britain	54,789
	$253,653

Fish Plates.

Belgium	$2,651
United States	58,333
Great Britain	397,580
	$458,564

Materials for Railways.

Germany	$1,222
Belgium	19,744
United States	42,645
Great Britain	921,276
	$984,887

In the supplying of iron columns and girders used in buildings and bridges Belgium has practically no competition.

Columns and Girders.—1897.

Germany	$7,822
Belgium	553,248
United States	8,071
Great Britain	16,825
	$585,966

In cutlery Great Britain has the bulk of the trade, although Austrian white metal knives, forks and spoons are largely imported via Hamburg, and French table cutlery is also largely used. In pocket knives the Germans and Belgians practically control the market, supplying a cheap and gaudy article that sells very readily in the interior. As the statistics show, however, in Buenos Ayres and Rosario English razors, scissors, carving knives and forks, &c., are greatly preferred to either the French, German or Belgian. Splendid opportunities exist in this respect for the introduction of American cutlery that will no doubt be taken advantage of ere long.

Cutlery.—1897.

Germany	$54,441
Belgium	65,722
Spain	131
United States	3,134
France	93,108
Italy	4,748
Great Britain	112,987
	$334,671

In mechanics' tools Great Britain also supplies the bulk of the trade although both Belgium and the United States are active competitors and have a growing trade, while that of Great Britain is decreasing.

Tools, Mechanics'.—1897.

Germany	$33,688
Belgium	72,701
United States	63,217
France	29,184
Italy	4,556
Great Britain	104,464
	$307,809

Black fencing wire comes mostly from Belgium and Germny, although both Great Britain and the United States are competitors.

Wire, Fencing (Not Galvanized).

Germany	310,124
Belgium	504,776
United States	139,114
Great Britain	179,271
	$1,133,185

Galvanized wire, including the barbed product, also comes mostly from Germany and Belgium, although the United States is rapidly forging to the front, especially in the supplying of barbed wire, which is now coming in great quantities by every steamer from the States.

Wire, Galvanized.

Germany	$339,427
Belgium	393,476
United States	197,523
Great Britain	164,924
	$1.0 5,350

The imports of nails of all kinds fell off considerably during 1897 and the early part of 1898, due to the large local production, but owing to the sudden decline of gold premium during the last six months of 1898 quite a number of the local factories were obliged to close their doors, to the benefit of the import trade. The trade is at present controlled by Great Britain and Belgium, although both Germany and the United States are quite active competitors.

Nails of All Kinds.—1897.

Germany	$34,474
Belgium	89,939
United States	14,763
France	4,432
Great Britain	96,292
	$239,900

In kitchen and cooking utensils of metal Belgium and Germany may be said to control the trade. Great Britain, however, supplies most of the tinned cast iron hollow ware imported, but cannot compete in the wrought iron manufactures. Judging from statistics the United States does not seem to take any interest in this trade, as the trade is decreasing in volume steadily.

Kitchen and Cooking Utensils.

Germany	$261,687
Belgium	215,360
United states	13,165
France	27,601
Italy	1,673
Great Britain	161,948
	$681,454

While local manufacturers appear to have during the early part of 1898 still further developed their trades under the protection of the heavy custom house tariff, still the total imports of all classes of goods for 1898 were about $100,000,000, as against $98,000,000 in 1897, showing that the sudden heavy decline of the gold premium during the last half of the year was the cause of an unexpected activity in the import trade.

The majority of the manufacturing interests of Argentina are established in the province of Buenos Ayres, and a large proportion in the city of Buenos Ayres itself. In January, 1898, there were in the province 988 establishments engaged in the manufacture of wire netting, zinc roofing, castings, gas and water fittings, &c., from the raw materials, and these gave employment to 3196 persons. There were also four large iron foundries, 625 blacksmiths and iron workers and 293 tinsmiths, but owing to the decline of the gold premium from about 185 per cent. to 110 per cent. in less than six months the smaller of them in large numbers have given up the attempt to compete with the foreign manufactures. It can readily be seen what an impetus this premium decline has given to the import trade, as but a few months ago, when the premium was 185 per cent., the Argentine was obliged to pay $2.85 paper for $1 worth of American goods, whereas now he can buy the same goods for $2.10 paper.

In view of these existing conditions it would seem that now is the time for American manufacturers desirous of an export trade to place themselves in communication with the Argentine importer. C. Paulo Rei.

George W. Kittredge, who for many years has had charge of the department of illustrations for *The Metal Worker* and *The Iron Age*, has left this office and taken a studio at 150 Nassau street, New York, where he purposes continuing in the work of preparing illustrations of mechanical subjects for use in the columns of trade papers or for catalogues, circulars, &c. His ability in this class of drawing is recognized by all who are familiar with his work, while his long experience in matters pertaining to the various processes of engraving renders him especially valuable as an illustrator in this field.

The contracts for the first building of the Acheson Graphite Company have been let. This plant is to be erected on the lands of the Niagara Falls Power Company at Niagara Falls, near the plant of the Carborundum Company, in which Mr. Acheson is also interested. The first building will be of brick, one story high, and 50 x 100 feet at the foundations. This building, it is expected will be but a small factor in the complete factory. Before the company will be able to go ahead on full speed some experimental work must necessarily be done, and this will be accomplished in this first building. Then when the full demands of the company for factory room are well defined other structures will be built.

Alfred Clifford

A history of the American wire industry would not be complete without an account of the career of Alfred Clifford, who was identified with its development in the West from its early days. Mr. Clifford was born in Massachusetts and in 1869 he moved to St. Louis. In 1874 he became identified with the Ludlow-Saylor Wire Company of St. Louis and was elected a director of the St. Louis Wire Mill Company in 1885, in the next year disposing of his interest in the Ludlow Saylor Wire Company to devote his entire attention to the business of the St. Louis Wire Mill Company. When the Consolidated Steel & Wire Company were formed Mr. Clifford was elected treasurer and upon the organization of the American Steel & Wire Company of Illinois was treasurer of that corporation. He was elected a director of the American Steel & Wire Company of New Jersey when formed this year, but desiring to withdraw from active business, he declined to serve.

ALFRED CLIFFORD.

Major Fred Brackett, secretary to the United States Commission of the Paris Exposition, states: "While it is true that the applications for space from intending exhibitors at the exposition of 1900 are undoubtedly beyond the allotment made to the United States by the French Government, yet as the greatest care will be taken to select the American exhibits the United States Commission asks and encourages all manufacturers, inventors and producers to apply for space and offer their goods and products for exhibit. Space will be allotted only to the best products in every class or group, and there is still time in which to file applications for space. Fears have been entertained by some American manufacturers who intend to exhibit at Paris that their inventions will not be protected by the French Government. There should be no alarm on this line, as the United States Commission is assured by the French Commissioner General that all inventions, trade-marks, &c., of American exhibitors will be amply protected."

In the United States Circuit Court of Appeals at Philadelphia on March 17 arguments were begun in the suit of the Carnegie Steel Company, Limited, against the Cambria Iron Company, brought for alleged infringement on a patented method for mixing molten pig iron. This came up on the appeal of the Cambria Iron Company from the decision in the Circuit Court at Pittsburgh, which was in favor of the Carnegie Steel Company, Limited, and under which the Cambria Iron Company were restrained by injunction from making the alleged infringement.

It is reported that the deepest ocean sounding yet recorded has been made by the British steamer "Penguin," during a cruise in the Pacific. A depth of 4762 fathoms was found between Auckland and the Tongan Archipelago. The "Penguin" also investigated the recent disappearance of Falcon Island, which was formed during a volcanic eruption in 1885 and vanished in September last year, and it was found that the island had sunk 3 fathoms below the surface.

It is announced that the Erie Canal will be opened to navigation on April 15.

Testing a Manganese Steel Safe.

A very elaborate series of tests were made recently at Albany, N. Y., of a safe manufactured by the Hibbard & Rodman Safe Company of 253 Broadway, New York. The peculiar feature of this safe is that it is made of manganese steel. The tests were made under the auspices of the New York State National Bank of Albany, being conducted for the bank by G. W. Van Rensselaer, who submitted the safe to the effect of a series of ten shots, after drilling and chipping tests had been tried in vain. In his report Mr. Van Rensselaer says: "After the blowing out of the spindle at the sixth shot, which was a part of the test, intended to represent mob attack, the opening into the safe was sufficient to readily take all the liquid or solid explosive necessary to blow the door from the safe, but as this fact was so plain, and also that from the construction such an amount would certainly destroy anything of value that the safe might contain, it was not deemed desirable to carry the test to a conclusion attended with so much danger when nothing was to be gained thereby."

The conclusion of the report is as follows: "In conclusion I would say that I believe the tests made on burglars' lines were all that were practical with explosives. The mob attack was unusually severe, and could not have been made in any building or structure without demolishing it. The kind and strength of the explosive used was certified to by the manufacturers and shippers, who of one of the largest and most reliable concerns in the business, and I am satisfied was as represented."

We understand that as a result of the test the New York State National Bank of Albany gave the makers an order for four safes.

The gases present in minute quantities in the atmosphere around us have, since the discovery of argon some four years back by Lord Rayleigh and Professor Ramsay, added quite a new interest to the realms of inorganic chemistry. Argon, helium, krypton, metargon and neon, and probably one or two other gases, are now known to be present in the atmosphere in addition to the oxygen and nitrogen which only five years ago were supposed to be the sole constituents of the air, excepting the accidental presence of carbonic acid, &c. A very interesting paper on the preparation and properties of argon was recently read before the Royal Society by Professor Ramsay and Mr. Travers which gives some insight into the amount of work and care necessary to separate these minute traces of rare gases from the bulk of the oxygen and nitrogen. From theoretical considerations based on the atomic weights of helium and argon respectively about 4 and 40, it was argued that another unknown gas with atomic weight about 20, still remained to be discovered, and such a gas was ultimately discovered when the experimenters were able to produce a sufficiently large quantity of argon to work with. About 15 liters of argon were made use of in this research.

The Pennsylvania State Legislature has adopted a resolution creating a commission of 15 members to examine and report as to what changes should be made in the laws and policy of the State relating to combinations of capital for business purposes.

Enameling as an Industry.

BY JOSEF VOLLKOMMER, PITTSBURGH, PA.

By way of introduction I desire to state that it is not my intention in this paper to exhaust the above subject, but merely to give a general sketch of an industry which though comparatively of recent origin has developed at such gigantic strides, representing in this country alone an investment of more than $50,000,000. Yet, despite this fact, its details are little known outside of those actively engaged in it, since most manufacturers use their own processes, which if not protected by patents are considered trade secrets.

In defining enamels we find them to be a coat of glass, transparent or opaque, applied to metals or ceramic products. Confining ourself to the first mentioned, we ascertain that its history, like that of glass, is very old. The first specimen of the enameler's art is to my knowledge the highly ornamental breast plate (pectorale) of Rameses II, King of Egypt (about 1400 B. C.), at present in the Louvre, at Paris.

Enameling may be subdivided into several widely differing branches. We have the jewelers and artist enamels, used for decorating precious metals, or for producing vitrified paintings on metallic surfaces, then such for copper and iron, the latter of which are less intended for decorative effects than as preservatives against chemical and mechanical influences. Like glass, all enamels consist mainly of silica and alkalies. But few metallic oxides enter directly into their manufacture, as for instance the several oxides of lead (especially minium Pb^3O^4), which form the silicates of lead or leadglass; as a rule they only serve to impart color and opaqueness. Borax is another important element of composition, since it serves occasionally as a substitues for silica, oftener, however, to regulate the fusibility of the enamels. The fact that borax easily dissolves most metallic oxides, producing very intensely colored glasses, makes this chemical indispensable to the enameler.

The use for which ware is intended governs the composition of enamels and their smelting point. Those serving only for decorative purposes (as most jeweler and artist enamels) require in the first place a brilliant color and high gloss at a low smelting temperature. Their resistance against chemical action is of minor importance, also the consideration whether they contain elements detrimental to health, such as, for instance, arsenic or oxides of lead. Enamels used for industrial purposes, on the contrary, must in the first place resist successfully chemical and atmospheric influences, hence require higher smelting temperature and differ, of course, greatly from the first mentioned, which are mostly silicates of lead.

Another item to be considered by the manufacturer is cost of producing. While it is of minor importance when only small quantities are consumed, as for artistic work, it is one of the gravest problems to solve for the large manufacturer of enameled iron articles, where thousands of tons are consumed each year.

Generally we find that the greater is the percentage of silica to the other elements in any enamel the more difficult is its fusibility, the greater its hardness and durability. Thus, were silica alone fusible under ordinary conditions, it would be the ideal enamel, resisting nearly all chemicals and change of temperature, therefore enamels containing apart from silica only small amounts of alkalies are among the most durable and serviceable.

The most important raw materials used in the manufacture of enamels are silica and several alkalies. Silica is mostly used in the form of pulverized quartz. Flint, while of the same chemical composition (SiO_2) as quartz ought not to be substituted for the latter, since its action upon alkalies appears to be slightly different.

The alkalies we require can be used in various forms, since they all combine with the silica forming a glass. Thus, sodium and potassium products are used. However, the sodium compounds are preferable, since they form silicates at a much lower temperature than the first mentioned, although giving not quite as durable an enamel. The most required potassium products are carbonate of potassium and saltpeter. Both salts are easily soluble, absorbing moisture freely; both are of a white color; the former is strongly alkaline. Among the sodium compounds used are enamel soda (sodic carbonate), sodic sulphate or glauber salt and common salt. Other mineral and chemical products entering into the manufacture of enamels are feldspar, fluorspar, lime or calcium oxide, carbonate of magnesia, sulphate of magnesia, sal ammoniac, several kinds of clays, and last but not least the various metallic oxides. However, they all form only a small part of the enameler's stock of raw materials.

The iron enamels, according to their application, can be divided in two classes—ground enamels, requiring a high smelting temperature, and the more easily fused outside enamels. The first coat, or "ground," consists mainly of quartz, borax and feldspar. By adding carbonate of magnesia or clay the smelting point of the mixture may be raised, until, if applied to the metal, the enamel will not smelt entirely, but, as it were, only sinter or bake to it. Since the second or outer coats are supposed to form a perfectly smooth glossy porcelain-like surface, their smelting point is considerably lower than that of the "ground" enamel. Otherwise the dark ground might mix and blend with the differently colored surface.

Preparation of the Metal for Enameling.

The durability of enameled articles depends in a great measure upon the proper treatment of the metal's surface. The best enamel will chip or scale from iron which was not properly prepared. Sheet metal, especially stamped ware, after having been annealed in special furnaces, is subjected to a pickling process in diluted sulphuric or muriatic acid. After an immersion of several hours and a thorough scrubbing the last traces of acid are removed by dipping the articles in boiling soda solution. They are now ready for the application of the enamel. Cast iron for our purpose ought to contain only a low percentage of carbon. Its surface should be bright and all scales or traces of facing carefully removed. After slightly pickling such castings and cleaning them with boiling water, the ground coat may be applied.

For smelting enamel, tank or crucible furnaces are used. The tank furnaces are of various construction, for continuous and intermittent use, and resemble in several features our open hearth steel furnaces. The fire gases, after enveloping the bottom and sides of the tank, finally pass over the latter and thus come in contact with the smelting enamel before reaching the outlets to the chimney. Crucibles as a rule are arranged in groups or batteries of 10 to 12 in such a way that each one can be used separately, or all at once, according to the nature of the work. Special valves regulate the consumption and distribution of the gas. Both kinds of furnaces have their special merits and disadvantages. Tank furnaces commend themselves where large quantities of an ordinary enamel are required, which is not easily affected by the reducing influences of fire gases, while crucibles, being protected by covers against the direct flame, are used with advantage to obtain better enamels, especially such which might suffer through direct contact with the flame, as for instance the silicates of lead. How important the difference between oxidizing and reducing heat is will be seen from the fact that an enamel containing oxide of copper would turn green only in oxidizing flames, while reduction would turn the cupric oxide (CuO) into cuprous oxide (Cu_2O), and in place of a green enamel we should have such of a reddish or gray color. Other oxides changing in a similar way are those of iron, manganese, chrome and silver.

The several raw materials are used in pulverized form and ought to be thoroughly mixed before emptying into the smelting furnace. Frequently the molten enamel is granulated by running it from the furnace directly into vessels with water, which operation lessens considerably the mill work, but also results in an inferior quality of enamel, which in this way loses valuable elements through the formation of waterglass.

The enamel mills do not differ materially from other devices for pulverizing mineral products. However, the material should not come in direct contact with any metal surface, wherefore crushers with iron jaws are objectionable. Even small particles of iron will discolor otherwise perfectly white enamel. The porcelain lined pulverizing mills are considered among the best for our purpose. They consist of a large, hollow cylinder, lined on its inside with unglazed porcelain, and swinging around a horizontal axis. The grinding is produced by the sliding and rolling inside this cylinder of a great number of spherical flint pebbles, mixed with the coarse enamel, while the cylinder is rotating. The material is usually delivered to an automatic feed and from there conveyed to the inside of the cylinder, to be ground (either wet or dry) through the action of the pebbles. When the enamel is sufficiently fine and after having traveled through the entire length of the cylinder, it is discharged through a spout into large receptacles. These cylinder mills, aside from their economic operation, produce no dust and prevent absolutely contamination during the process of grinding.

The enamel is applied wet or dry. In the latter case water is added to the mill charge, frequently also Epsom salt, carbonate of magnesia, clay, &c. Such metallic oxides should now, too, be added which are very susceptible to the oxidizing or reducing effects of fire gases.

For sheet metal ware almost exclusively wet enamels are used. They ought to contain sufficient water to give them the consistency of thick cream or syrup. As a rule the enameling is done yet by hand, although there exist several excellent devices to do this work mechanically. The first operation consists in scrubbing the

vessel thoroughly with brush and water so that its entire surface is moist. Next the dipper, with three armed, tongue like springs, takes hold of it and immerses thoroughly in a large vessel with enamel, or pours the latter over it. After assuring an equal distribution through swinging and shaking the vessel it is handed to another person, who with steel needles and scraper removes all superfluous enamel, especially from the seams and rims, to prevent the formation of unsightly lumps and blisters.

The ware thus finished is conveyed to the drying room to evaporate all moisture. The unburned enamel being very brittle, those articles require careful handling and are usually carried on iron grates, with sharp points, so as to injure the surface as little as possible.

For burning the ware muffle furnaces are used. They consist of a retort or muffle of fire clay, so inserted into the furnace that the fire gases envelop its entire outside, but do not come in direct contact with its interior, only heating the muffle to a very high temperature, the smelting point of enamel. Heavy, well balanced cast iron doors, lined on the inside with fire clay, admit the ware, which is run in and out on grates, by mechanical devices resting on peculiar carriages (forks). This operation (changing the grates) ought to be done in the shortest possible time, in order to keep a uniform heat in the furnace. A small hole in the furnace door enables the burner to observe the interior of the muffle, and so soon as the ware assumes a bright red color and high gloss he changes the grate for another containing unburned ware. The second and following coats of enamel are applied and burned in the same way. These latter coats ought to be thin but very opaque and more easily fluxible than the ground. After their last fire the ware, still red hot, is pressed into shape by various devices, so as to assume its originally intended shape.

Enamel, like glass, gains greatly in toughness and elasticity, if permitted to cool slowly, for which purpose a peculiar tunnel like furnace (up to 60 feet long) is used. Its temperature is the highest at the point where the ware enters. The latter travels automatically on small cars on a slight incline toward the cooler outlet, and, after assorting, is ready for the market.

The several kinds of enameled sheet metal ware are all subject to the same general treatment, but differ, of course, in the composition and application of enamel, &c. For instance, the so-called granite ware contains only one coat of enamel, which makes it very cheap to produce. Its darker spots (mottling) is simply the action of certain metallic salts (sulphates of iron, cobalt or nickel), which form part of the composition of the enamel upon the metal. Other cheap processes consist in mixing variously colored enamels in such a way as to produce a dotted surface. The marble effects are produced mechanically. The decoration is done much in the same manner as China ware, and decalcomania processes used where designs repeat. The manufacture of enameled advertising signs has developed into a special industry. The preparation of the metal and the composition of the various enamels is the same as described before. However, greater care must be taken in spreading the enamels equally over the often very large surfaces, for which purpose frequently large soft brushes are used in preference to dipping or immersing, if the enamel is not applied mechanically by machines. The lettering (raised or sunk) is done by means of paper or metallic stencils, which are put over the sign, containing the last, unburned coat of enamel, and then rubbed out by brushes. After careful retouching the sign is burned in such a way as not to leave any marks on the surface.

To cast iron the ground coat or slush is applied wet, and the remaining enamel, wet or dry, according to size and use of the articles. The dry process consists in applying the pulverized enamel either by hand or mechanically to the metallic surface, which has previously been treated to assure a good adhesion. The casting is then burned in a muffle furnace and this process repeated until a perfectly smooth and uniform surface is obtained. Cast iron may be enameled like the sheet metals in various colors and decorated in a similar manner. Very pretty effects are obtained with the so-called majolica enamels, called so from their close resemblance to glazed pottery or majolica ware. These enamels can be prepared in almost any color and are applied by siftng over the red hot metal, not necessitating a special muffle furnace or second fire. This is a short outline of an industry which with each year gains in importance. The fact that only lately a $30,000,000 syndicate has organized to control the granite enameled ware will give a small idea of the capital invested in it, and of its magnitude.

A pamphlet just issued by the International Correspondence Schools, Scranton, Pa., calls attention to the special short courses in English branches, bookkeeping, stenography and mechanical and ornamental drawing offered by that institution. Complete information is given as to these courses and numerous testimonials from graduates are printed showing the benefits derived from participation in the correspondence instruction given by the schools.

The Stove Founders and the Molders.

A very important conference was held in Chicago on the 15th instant, between the representatives of the Stove Founders' National Defense Association and a committee from the Iron Molders' Union of North America. Once a year these organizations have a conference for the purpose of fixing the rate of molders' wages for the next twelve months. The recent conference which was held for this purpose considered a proposition from the molders to make an advance of 15 per cent. on account of the generally prosperous condition of the country. This was considered too great an advance by the manufacturers, and after a protracted but amicable discussion a compromise was arranged of 10 per cent. This fixes the wages in the stove foundries of the country for the coming year and prevents the possibility of any trouble with molders. The representatives of the stove manufacturers' association probably control 90 per cent. of the output of stoves, and it is likely that the other manufacturers will make the same terms with their men. Another advance in the price of stoves is expected as a result of this advance in wages.

New Publications.

BUSINESS ATLAS AND SHIPPERS' GUIDE. Published by Rand, McNally & Co., Chicago, Ill., and 142 Fifth avenue, New York.

The last edition of the Business Atlas and Shippers' Guide has been prepared, with special reference to commercial requirements, such as making shipments, selecting new fields, routing salesmen, verifying addresses, locating towns, tracing lines of railroad and dividing systematically territory to be covered. The system of numbering railroads shows instantly the correct names of railroads to different points, by means of numerals in red ink on the lines of the various systems, which refer to an index on the side of the map, giving full name of each road thus numbered. For convenience in routing salesmen, the names of the more important towns are arranged according to their relative populations on the margin of each State map. Among the other matter is postal information, post offices, alphabetically arranged, names of towns not post offices, what railroad and town is on, which express company to ship by, when a town is a money order office, telegraph station and county seat, population of towns, cities and counties, names of rivers, mountains and lakes, what branch of a certain railroad a town is on, if not on main line, how far each railroad runs, and a mass of kindred information. While designed for United States business houses, there are double page maps of each continent and special maps of Mexico, Hawaii, Central America, Cuba, West Indies, Philippines, Porto Rico, China, &c., especially useful to manufacturers and merchants cultivating a foreign trade.

IRON MAKING IN ALABAMA. Alabama Geological Survey. Second edition. By W. B. Phillips, Montgomery, Ala.

Dr. Phillips has issued a second edition of his report made to the Alabama Geological Survey on Iron Making in Alabama, which is widely known. He has added chapters on coal wasting, on the manufacture of basic open hearth steel, and on the cost of making pig iron in Alabama.

Saichiro Oi, chief of the Telephone and Telegraph Department of the Japanese Government, arrived in New York from Europe on Saturday. Mr. Oi will spend some time in this country studying American telephone and telegraph systems and methods, preparatory to beginning the great extensions in this line which the Japanese Government proposes to undertake in the near future.

The drought which seriously threatened Central and Northern California has been broken by a copious rain. Conditions throughout the Sacramento Valley now promise abundant crops.

At a meeting of the Executive Committee of the Lake Carriers' Association held last week in Cleveland, Ohio, it was decided to advance the wages of the seamen, engineers and all hands employed on lake vessels $5 per month for the coming season.

The Iron Age.

New York, Thursday, March 23, 1899.

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The Boom of 1879-80.

In response to a number of requests for some of the leading features of the boom of 1879 80, we present herewith a review of the course of prices during that remarkable period. The word "boom" was then first applied to a rapid rise in prices. Nothing approaching it has since been seen until the present year, except the short lived improvement in 1895, which only lasted long enough to whet the appetites of those who passed through it and received some benefit from it The events of this year are more nearly like those of the great prototype of booms, hence the desire for information concerning it. The boom of 1879 80 covered the 12 months from May, 1879, to May, 1880, but culminated in February of the latter year. It began with the railroad companies, whose orders for rails, cars and other supplies were suddenly so much greater than they had been for years that the rolling mills were quickly supplied with contracts for delivery extending far ahead, and when the mill owners attempted to cover their requirements of materials a wild scramble ensued which shot prices upward. All consumers of iron and steel were affected by a mania to buy, which was only broken when the supply was heavily increased early in 1880 by a great expansion in domestic production and by large importations. European producers were in a good position to supply this country at the time, as their works were only partly employed by the demand from the usual sources, and great stocks of pig iron were being carried in Great Britain. The limited production of this country at that period is shown by the statement that in 1878 we only turned out 2,301,215 gross tons of pig iron, in 1879 only 2,741,853 tons, jumping in 1880 to 3,835,191 tons, while of both iron and steel rails we made in 1878 only 788,112 gross tons, in 1879 only 993,993 tons, increasing in 1880 to 1,305,212 tons.

It may of interest first, as this was a railroad boom, to show the course of rail prices. As about one-third of the rails laid in the years under review were made of iron, it is necessary to quote prices of iron rails as well as steel rails. Iron rails at Pennsylvania mills ranged in 1878 from $33.50 in the first half to $34 in the latter half of the year, advancing from month to month steadily in 1879 until $54 was reached in December and $68 in February, 1880, declining to $45 in July, from which prices recovered a dollar or more and were sustained at the higher rate throughout the remainder of the year and the whole of 1881. Steel rails touched their minimum of $41 at mills in Pennsylvania in January, 1879, advanced month by month until $85 was quoted in February, 1880, declining steadily to $58 in December and rising the same as iron rails a dollar or two per ton, to run at that level through 1881.

Many of our readers will desire more information than merely rail prices For their benefit the following tables of prices have been compiled from the files of *The Iron Age*, covering both 1879 and 1880 by months:

1879.

Months.	Bessemer pig iron, Pittsburgh.	Neutral gray forge pig, Pittsburgh	Common bar iron, Pittsburgh.	No 27 sheet iron, Philadelphia	Old iron rails, Pittsburgh.
	$	$	c	c	$
January..	20.00	16 00 to 16 50	1 65 to 1 75	2 90 to 3 20	23 00 to 24 00
February.	20.00	16.00 to 16 50	1 65 to 1 75	3 20 to 3.30	23 50 to 23 75
March....	20.00 to 22 00	16 00 to 16 50	1 70 to 1 75	3.40 to 3 50	22.50 to 23.00
April....	20 00 to 22 00	16.00 to 17.00	1 70 to 1 75	3 40 to 3.50	22 50 to 23.00
May..	20.00 to 22.00	16.00 to 16 50	1 70 to 1 75	3 40 to 3 50	21 50 to 23 00
June..	21.50 to 22 00	16 00 to 16.50	1 70 to 1 75	3.40 to 3 50	21 50 to 23 00
July.. ..	20 50 to 22 00	16 00 to 18 50	1 75 to 2 00	3.40 to 3 60	23 00 to 26 00
August...	20 50 to 26 00	19 50 to 21 50	2 00 to 2 30	3 50 to 3 60	26 00 to 27 50
Sept..	25 00 to 33 00	21 50 to 28.00	2.50	3 60 to 4 10	29 00 to 31 00
October ..	34.00 to 35 00	28 00 to 31 00	3.00 to 3 50	5 20 to 5 70	33 00 to 38.00
Nov..	35 00	29 50 to 31 00	3 00	5.70	36 00 to 38 00
December	35 00 to 38.00	29.00 to 30 00	3 00 to 3 30	5 70 to 6 00	36 00 to 38 00

1880.

January..	40 00 to 47.00	35.00	3 50	6 50	40.00 to 43.00
February.	45.00 to 51 00	38 00 to 42 00	4 00	6 75 to 7 50	47 00 to 48 00
March ...	45 00 to 46.00	38.00 to 41 00	4 00	7.25 to 7.50	44 00 to 46.50
April.....	33 00 to 35 00	No sales.	2 90 to 4.00	5 75 to 7.00	43 00 to 44 00
May..	25.00	No sales	2.50 to 2 80	5.00 to 5.75	No sales.
June.....	26.00	20 00 to 25 00	2 00 to 2 50	5.00	No report.
July.. ...	26 00 to 30 00	22 00 to 26.00	2.00 to 2 25	4 75	No report.
August ..	27 00 to 30 00	22.50 to 26 00	2.20 to 2 25	4 75	No report.
Sept	28 00 to 30 00	22 50 to 25 00	2 20 to 2 30	4 75	29 00 to 31 00
October...	27.00 to 28.00	23.00 to 25.00	2.15 to 2.30	4 75	28.00 to 30 00
Nov.. ...	26 00 to 28 00	22 00 to 26 00	2 00 to 2 25	4 75	No report.
December	27 00 to 28 00	22 00 to 27.00	2 00 to 2 25	4.50	No report.

The range of prices on gray forge pig iron given each month in the latter half of 1880 is the spread from cinder mixed to all lake ore.

These tables would not be complete without some reference to the subsequent course of prices Both Bessemer and gray forge pig iron sold higher in 1881 than at the close of 1880, and only began to decline in the last months of 1882. Bar iron improved slightly in 1881, selling up to 2 5 cents in the last quarter of the year, and holding up to that price almost the whole of 1882. Sheet iron dropped ¼ cent in 1881 until the last half of the year, when it rose to 5.5 cents, holding at that price until July, 1882, when it yielded to 5.25 cents, declining to 4.75 cents in December. The course of old iron rails was like that of pig iron.

It will be seen from the foregoing figures that the collapse in the boom which occurred in the spring of 1880 did not carry prices down to the extremely low level prevailing in the opening months of 1879. The impetus of better business was great enough to keep prices on a fairly high level for several years. Increasing production of iron and steel was steadily absorbed, and besides a considerable quantity of foreign iron and steel annually found its way into American markets, showing no material falling off until after 1890.

A Question of Industrial Monopoly.

The consolidation of industrial interests, since it has been making such marked progress, seems to have encountered less enmity in the public mind than was the case when the first corporations of this class were formed. Then the idea prevailed that the chief end of every combination was a monopoly in some line, to enable prices to be advanced to a higher level than would be possible under free competition. It has been shown, however, that monopoly does not necessarily lead to high prices. Railways, for example, have gained a monopoly of traffic in certain territory, without having made their rates exorbitant. To come into the industrial field, cases can be cited where prices of products are lower than before the formation of the companies now in control, the decline being a result

of economies made possible by combination. An official of an important consolidated business has been quoted as saying: "We are operating on the policy that the absolute bed rock basis for the conduct of an industrial company such as ours is to be able to sell its product at a price which, while rendering a profit, is still unprofitable to competitors." The more companies are conducted on such lines the more will public sentiment against monopolies and trusts disappear.

The public is little concerned about the concentration of business in certain lines in the "department stores," because department store prices are, if anything, lower than were paid for the same goods when sold by the small retail stores. The retailers who feel that their business is being killed by the big stores may protest, and even secure the enactment of laws for their protection, but popular sentiment is on their side about as little as it was with the stage coach drivers whose occupation was taken away by the advent of the locomotive. In regard to the great industrial combinations, the people at large are less concerned than those manufacturers and others who fear that they will be unable to do business in the same field with them. And this is not the least important question under our new industrial *régime*. Even if it were proved that the great combinations had benefited the public by lessening the cost of necessaries of life, they could hardly be looked upon as an unmixed blessing in case they had the effect of lessening opportunities for work. But the latter condition does not appear probable.

It is to be considered that not all the numerous combinations lately announced are so far reaching in their scope as their promoters intended. A company organized to control a given industry, with say $50,000,000 of capital authorized, may seem a very formidable concern, especially to a man of small capital who has been thinking of establishing himself in that line. But in the case of more than one combination it will be found that no addition has been made to the capital actually involved; the number of factories is the same, with precisely the same resources; there may have been issued, as a means to forming the consolidation, only a small part of the total capital authorized. Such a new combination is no stronger than the various constituent companies were before. As for competition, the new beginner—if well enough equipped for the business to succeed under any circumstances—might find his task easier with only one big company in the field than if he had to meet all the constituent companies, each acting independently in the matter of prices.

It is suggested, sometimes, that a big concern may be able to make competition impossible by cutting prices in any territory or on any lines which would most seriously affect such smaller concerns as dared to enter its field. But in these days of rapid and cheap transportation a concern which is well equipped for business has the whole country for its market, if not the whole world, so that a combination which sought to protect itself against even a small competitor might have to cut prices over a very wide territory in order to drive it out of business.

Though a large factory may possess advantages over a smaller one in economy of production, that advantage may not increase indefinitely with the difference in the size of the establishments. As between an industrial plant on a good scale, under direct and capable individual management, and a combination of plants, operated by salaried officials under a composite board of directors, the advantage is apt to be in favor of the former, apart from the fact that the combinations are likely to be overcapitalized, with a demand for money for dividends which keeps prices higher than the independent factory is obliged to charge. Again, most of the new combinations are made up of elements that were until lately strongly antagonistic. In more than one instance the inability of the members of a board of directors so made up to work in harmony has prevented the putting into effect of reforms or economies that were the chief incentive to the combination of the businesses involved. Where such a condition exists it is favorable to the independent producer.

Scarcely one of the new combinations covers the entire field to which it belongs. Even the Standard Oil Company, so often referred to as a successful example of business consolidation, produces only about 65 per cent. of the total output of refined petroleum oil in this country. Complete monopolies seem out of the question. In certain lines, where consolidations have been in effect for years, the factories which remained independent at the time or have since come into existence are now an important element. When the rubber shoe industry was consolidated, with $40,000,000 capital, several of the factories were closed, but so many new ones have since been started on the outside that the total number is now as great as before the combination was formed.

We have referred lately to the growing demand, at home and abroad, for all kinds of manufactured goods, and there is reason to expect that for a long time to come an increase in productive capacity will be necessary. To assume that, on account of a consolidation in any industry, even under circumstances most favorable for its success, the door is closed to individual effort on the part of others, is to admit that the combination embraces a monopoly of brains as well as control of factories and of the money already invested in the business. But whether the great consolidations shall prove successful or otherwise, whenever the day comes that men of ability in the industrial field are unable to start new plants—or new lines of production—without the consent of some corporation, it will have to be conceded that progress has reached its limits so far as that industry is concerned.

Should Railroad Building Be Restricted?

The moderate revival in railroad building now being experienced is creating some little disquietude in certain directions. Old lines are being paralleled in some sections of the country which do not seem to need the additional facilities. This is eliciting considerable criticism of the managers or promoters of the new lines, who are charged with not properly considering the circumstances and conditions governing railroad traffic. While old lines are now doing fairly well, and some of them are reporting large earnings, they have passed through a long succession of lean years in which the struggle for existence was severe, and not every road was successful in evading the necessity for a receivership. But the improved times have brought with them this danger of still greater competition for business in the future. Hence the demand is arising for restricting the building of railroads by either State or National enactment, on the ground that unrestricted competition in this respect is calamitous. Investments in railroad securities, it is claimed, represent so large a sum and so many people and institutions are interested that they should be

safeguarded. Great Britain is cited as an example to be followed. There the projectors of a railroad must show to the satisfaction of a Parliamentary committee that the section through which it is proposed to run will support the line or a charter will not be granted. If the Interstate Commerce Commission should be endowed with such power, it is believed that railroad building in this country would not be done so recklessly as in past years, and much more stability would be given to railroad business and to railroad securities.

Those who favor the adoption of this restrictive policy by the Government seem to see only one side of the question, and that is the benefit of existing railroad lines and their security holders. Another and a very important consideration should not be overlooked, which is the wonderful expansion of general business throughout this country that has largely been caused by the cheapness of railroad transportation due to the free building of competitive lines. The country has been the gainer, even if losses have been sustained by individuals interested in the railroads affected by the competition. If we had followed in the footsteps of Great Britain from the beginning of her restrictive policy in railroad building it is likely that our railroad mileage would now be much less than it is, our railroad stocks and bonds would be worth more than they are, and transportation rates would be much higher. But would the country be as well developed as it has been under free railroad building, would our products be so freely interchanged between the different sections of the country, and would our merchandise be as cheaply laid down on the seaboard for export? The manufacturers and merchants of Great Britain complain of exorbitant charges by their railroad companies, which are apparently permanently sustained by the check imposed on the building of competing lines. Railroad building in this country should not be hampered by restrictive laws, but should be continued as in the past, subject merely to financial and business conditions. The railroad problem works toward a better solution when left without legislative interference.

The statistics of the production of steel in Great Britain, just issued, show an astonishing contrast with our figures. The output of Bessemer steel ingots in England in 1898 was 1,759,386 gross tons, while ours was 6,609,017 gross tons, or more than four times as great How much the make of Bessemer steel is falling behind in England is well illustrated by the fact that the production of open hearth steel in Great Britain in 1898 was 2,806,600 tons. Our own statistics of production of open hearth steel are not yet available. It is certain, however, that in spite of a heavy increase in 1898 they are still considerably below the English total.

The annual meeting of the British Iron & Steel Institute will be held in London on May 4 and 5, when the new president, Sir W. C. Roberts-Austen, will deliver his inaugural address.

The use of aluminum wire for copper in electrical work has been greatly stimulated by the high price of the latter metal. It is reported that a firm who have a contract for a seven-mile power transmission line for South America propose to place orders for aluminum wire for the whole line.

It is reported from Washington that a new commercial treaty will be concluded with Italy within a very short time. Italy, it is said, has made fresh concessions which will benefit both countries, and bring about a considerable increase in the trade between that country and the United States.

CORRESPONDENCE.

The Loss of Silicon in Annealing Malleable Iron.

To the Editor: Referring to a criticism made by Geo. C. Davis of Philadelphia, published in *The Iron Age*, March 9, in which he questions figures presented by undersigned in articles on malleable cast iron in your issues February 16 and 23, concerning loss of silicon during process of annealing malleable cast iron, I would beg to state that actual practice has been quoted, and I take the liberty of further supplementing the figures given:

	Silicon mixture.	Silicon hard iron.	Silicon soft iron.	Difference in silicon hard and soft.	Per cent. loss silicon in annealing.
1	0.88	0.59	0.42	0.17	28 81
2.....	0.63	0.49	0.41	0.08	16.32
3.....	0.72	0.57	0 45	0 12	21 05
4.....	0.91	0.77	0.63	0 14	18 18

There is perhaps no branch of the iron industry so susceptible of distinctly local conditions as the manufacture of malleable iron, and what has been done in one works has failed in others. In the tests given above the percentage of carbon removed during the anneal has been quite above the average, and the resulting iron was extremely soft and malleable. If, then, there had been no loss in the silicon content during annealing, the material would still be soft, but inclined to be short, having a decidedly steely fracture.

Silicon is a heat equivalent from the pig iron to the casting, coming originally with high thermic conditions, is eliminated by the same. In the annealing ovens used and in the practices followed there have been several ideas incorporated, which for business reasons the writer begs to be excused from disclosing, believing that Mr. Davis will recognize the necessity of so doing.

In C. P. Royston's article, which has been quoted, that writer states "that carbon is the only element capable of being removed during anneal." I would beg to state that there are several metalloids very much influenced by the heat generated during the anneal.

In H. R. Stanford's article he notes that one test shows a loss of 0.08 in silicon, and states "this bar was poured from the first ladle drawn from heat." I would like to know simply for information with what reasoning Mr. Stanford arrived at the above conclusion—viz., that the first iron should be so entirely dissimilar from other parts of the heat. The test pieces mentioned in the article questioned by Mr. Davis were taken from all parts of the heats.

J. E. Stead has carried his conclusions to a point in theory never attainable in modern practice, when he states that after annealing "silica appeared as a deposit in the joints of the iron crystals."

In regard to Mr. Davis' personal experience I would again repeat that local conditions vary so radically that comparisons are difficult to strike.

He states that his tests have lost as high as one-fourth carbon, while in many of those quoted by undersigned the loss has been many times as high as 60 per cent. The make up of mixtures varies with localities and the patterns to be run. Mr. Davis might be surprised to learn the composition of some mixtures from which tests have been taken. The lower the carbon and silicon content in annealed iron the more malleable it will be.

E. C. WHEELER.

DAYTON, OHIO, March 15.

The deed conveying the ownership of the Rhode Island Locomotive Works, of Providence, R. I., to the International Power Company, carried no less than $3,025 worth of revenue stamps. The tax represented $3,000,000 of property, the value placed upon the plant by the Power Company.

United States Consul Jones, at Tuxpan, Mexico, urges that mercantile catalogues printed in Spanish should be circulated in Mexico by our merchants immediately following the postal money order arrangement about to be made. He says there is a great field in Mexico for the mailing departments of our large stores, heretofore impossible to work.

At a conference held in Youngstown last week between officials of the Amalgamated Association and J. H. Nutt, representing the Iron Manufacturers' Association, it was found that the average selling price of common iron bars January and February did not warrant an increase in puddling for March and April. While the average was somewhat higher than for the previous two months it did not average 1.1 cent, which would be necessary to give the men an increase of 25 cents in puddling. It is certain that if present high prices are maintained the men will receive a material advance in wages in May and June.

THE MAGNATES OF THE WIRE INDUSTRY.

THE CAREER OF THE OFFICERS OF THE AMERICAN STEEL AND WIRE COMPANY.

One of the leading branches of the steel trade of the United States is the wire industry, whose magnitude will be appreciated when the fact is considered that the tonnage during the current year is likely to reach 1,200,000 gross tons. The rapid changes which have taken place in the wire industry during the past few years, and particularly during the last year, have been due to the efforts of a small group of men. In fact their career has been so closely identified with its development that their business history reveals every step in its rapid growth. Men still in the prime of life have laid the foundation of this magnificent industry, which in its extent overshadows that of any other country, and has now practically reached a control of the world's markets. The men who have contributed to bring about that result are now identified as officers with the American Steel & Wire Company of New Jersey, so that the following history of their life possesses an interest beyond that which attaches to an account of the struggles and successes of business and professional men.

JOHN W. GATES,
CHAIRMAN.

John W. Gates,

CHAIRMAN.

John W. Gates was born May 8, 1855, in Dupage County, Ill., and is the son of A. A. Gates, a farmer, who earned a competency and retired to private life. The Gates family originated in the State of Massachusetts in the early days of New England, whence they moved to Ohio and later settled in Illinois. Mr. Gates received his rudimentary education in the district school near his father's farm, and then entered Wheaton College, at Wheaton, Ill., finishing his education at the Northwestern College at Naperville, Ill., graduating in the class of 1873. Upon leaving college he embarked in the grain business at Turner, Ill., which he conducted successfully until 1875, when he sold out and opened a hardware store in the same place. This business gave him an insight into manufacturing, and, deciding to change his line, he went to St. Louis, where he entered the wire business under the name of J. W. Gates & Co. Being successful, the firm were in 1881 changed into the Southern Wire Company, who selected Mr. Gates for their president. As the business of the Southern Wire Company grew the stockholders saw the necessity of an Eastern supply house or factory which should be under their immediate control, and consequently in 1884 they formed the Braddock Wire Company at Pittsburgh, and built extensive works. Mr. Gates was chosen vice-president and later on president of this company. At this time Mr. Gates bought into the Iowa Barb Wire Company, at Allentown, Pa., with principal offices at New York city, and was chosen their vice-president. He also secured an interest in the St. Louis Wire Mill and was chosen vice-president of it, and finally he bought an interest in the Baker Wire Company of Lockport, Ill., and became their vice-president. He was also a director in the Laclede National Bank of St. Louis, Mo.

In 1890 Mr. Gates spent in the neighborhood of from three to four months' time visiting the different barb wire interests of the country, with a view of bettering the condition of the industry by getting them to work more closely together, the idea being to form a company through whom to sell the entire product of the country. The movement was looked upon with favor by all interested. But the scheme was a novel one to most of them, and not until January 1, 1891, was anything accomplished. At that time the Columbia Patent Company was formed, each barbed wire company being represented. This gave the manufacturers an opportunity to meet frequently and exchange views, and on July 1, 1891, the organization being pretty well perfected, the Columbia Patent Company undertook the selling of the product. To show to what extent Mr. Gates was successful in his efforts, it may be stated that about 95 per cent. of the entire product of the country was handled by the Columbia Patent Company, of which he was general manager. The company were prosperous during their existence or during the time that they were selling the product, but owing to a few smaller concerns being dissatisfied after a period of six or eight months the selling department of the Columbia project was abandoned, greatly to the disappointment of the majority of the manufacturers. It is the general verdict of those interested that it was a grand scheme and that Mr. Gates was certainly entitled to great credit for his untiring efforts to build up and unite the various interests.

He then became the prime mover in the formation of the Consolidated Steel & Wire Company, formed in December, 1892, succeeding to the property and business of the St. Louis Wire Mill Company, the Iowa Barb Wire Company, the Lambert & Bishop Wire Fence Company, the Braddock Wire Company, the Baker Wire Company, and subsequently the Freeman Wire & Iron Company. Of this great corporation he became general manager, retaining that position until April 6, when he resigned. While managing the interests of the Consolidated Steel & Wire Company he also occupied the presidency of the Columbia Wire Company, the owners of all the patents on barb wire and barb wire machinery.

In April, 1895, Mr. Gates entered upon a wider arena by accepting the presidency of the Illinois Steel Company of Chicago, succeeding Jay C. Morse. He conducted that great concern during the troubled years, retaining during the same time his financial interest in the Consolidated Steel & Wire Company. He was active in the organization of the older American Steel & Wire Company, who grew out of the futile attempts to consolidate the wire interest made under the auspices of leading banking interests. It was he who was the dominating spirit in the negotiations which in so brief a time expanded the older American Steel & Wire Company to the great new concern who now control that branch of the iron industry.

John Lambert.

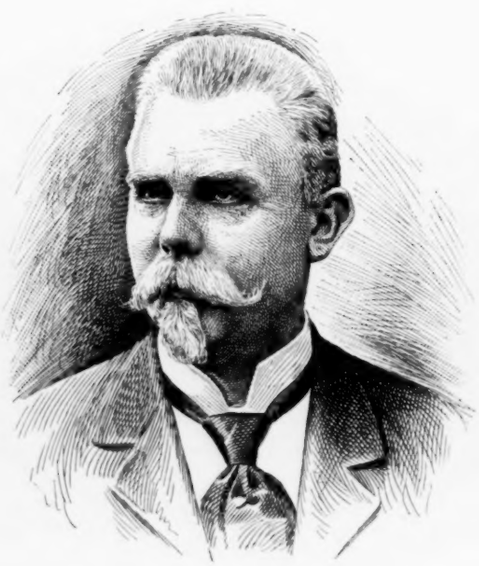
PRESIDENT.

John Lambert was born on January 12, 1847, in Hunterdon County, New Jersey. He received a common school education, like the vast majority of American boys, and was obliged to depend upon his own efforts to make his way in the world. In 1874 he took up his residence at Joliet, Ill., and engaged in business. In 1879 he entered into the manufacture of wire as a member

of the Lambert & Bishop Wire Fence Company. When the Consolidated Steel & Wire Company were formed in 1892, by the merging into one company of the Lambert & Bishop Wire Fence Company, the St. Louis Wire Mill Company, the Braddock Wire Company and the Iowa Barb Wire Company, he became vice-president of the new organization and later was elected vice-president and general manager. The American Steel & Wire Company began corporate existence April 1, 1898, and Colonel Lambert was elected president. He has always been assiduously devoted to business, and has therefore had no time to give to public office in any way, although his name has frequently been mentioned in connection with political honors. The only approach to anything of this kind was the acceptance of an appointment by Governor Tanner of Illinois as Colonel on his staff. He is a good talker, is gifted with ready wit, has a brain well stored with practical information accumulated during his active business career, and makes exceedingly good speeches on industrial topics. He is also of quiet tastes and domestic habits, and is blessed with a generous disposition. His liberality was especially conspicuous in assisting to relieve the hardships of Illinois troops recently in the country's service.

JOHN LAMBERT,

PRESIDENT.



W. EDENBORN,

FIRST VICE-PRESIDENT.

William Edenborn.

FIRST VICE-PRESIDENT.

William Edenborn was born on March 20, 1848, in Westphalia, Prussia, and after having learned wire drawing in his native land came to this country in 1867. He engaged in wire drawing in Pittsburgh, Pa., in that year. Two years later he accepted an engagement with the St. Louis Wire Mills, then in course of construction, and in that year drew the first piece of wire ever produced west of Cincinnati. The enterprise languished, owing principally to the difficulty in obtaining wire rods, which had to be imported from Europe. In 1871 Mr. Edenborn accepted an engagement with Ludlow, Saylor & Co., remaining with the firm until 1877, when he associated himself with O. P. Saylor in the line of the St. Louis Wire Mill Company, believing that with his practical knowledge of the wire business he could direct the plant successfully. The lease expired in 1880, and since the enterprise had prospered from the start Mr. Edenborn, seeking a larger field, and since his partner, O. P. Saylor, desired to retire owing to sickness, Thomas W. Fitch, then president of the Harrison Wire Company of St. Louis, became Mr. Edenborn's partner. The St. Louis Wire Mills were erected at their present location and in 1880 the St. Louis Wire Mill Company were incorporated. In 1881 a trade alliance was made with the St. Louis Wire Fence Company, and in the latter part of the same year Mr. Edenborn acquired an interest in the Western Union Wire Company. In 1882 Mr. Edenborn, who then virtually owned the St. Louis Wire Mill Company, sold a half interest to John W. Gates and A. Clifford, owners of the Southern Wire Company, these gentlemen selling him a half interest in the latter concern. A few months later the Western Union Wire Company were also absorbed.

Up to this time all the rods consumed had been imported from Europe. In 1883 it was decided to build a rod mill to supply the rods needed and works were erected at Rankin, Pa., near Pittsburgh, under the style of the Braddock Wire Company. This plant has since been improved and enlarged, until to-day it is believed that there is no rod mill superior, if indeed there is any equal to it. The management of the two concerns, for economic reasons, decided to unite the Rankin and the St. Louis plants and to embody with them the series of other works under the title of the Consolidated Steel & Wire Company, whose career is well known to the trade. Mr. Edenborn was the president of this concern up to April, 1898. He then retired, or thought that he would do so. When, however, his lifelong associates undertook, toward the close of that year, to unite the wire interests of the United States under the present corporation, the American Steel & Wire Company of New Jersey, they cabled to him in Europe for his assistance, and he re-entered active work as first vice-president and as member of the Executive Committee.

With a lifelong experience in the wire trade and a mastery of its practical manufacture, Mr. Edenborn has contributed through his inventions greatly to the progress of the industry. His earliest achievement as a mechanic and an inventor was the production of a lathe with five knives in which the article to be operated upon is stationary. It was designed for pointing rods. The principle of this invention has been widely accepted in practical work, and is particularly in use in the manufacture of the Medart shaft turning machine. In the wire industry Mr. Edenborn's first invention was the development of the essential features of barb fence making machinery, which made it possible to double the rate of production. When Mr. Edenborn's attention was directed into the channel of wire rod rolling he invented a wire rod reel which was described some years since in *The Iron Age* and which is now used all over the world. He is also the inventor of the basic patents in field fence machinery which are now so widely used and which are leading to the extraordinary development of this branch of manufacture.

Mr. Edenborn's interests are very extensive in other lines of enterprise. He is president and principal owner of the Shreveport & Red River Valley R. R. Company; he is interested in the Superior Pressed Brick Company of St. Louis, the St. Louis Iron & Machine Works of St. Louis and the German Savings Institution of St. Louis. He has invested largely in the Vache Grasse coal fields of Sebastian County, Arkansas, and is one of the largest owners of timber land in Louisiana.

Isaac L. Ellwood,

SECOND VICE-PRESIDENT AND CHAIRMAN OF EXECUTIVE COMMITTEE.

Isaac L. Ellwood was born at Salt Springville, Montgomery County, N. Y., on August 3, 1833, and with the advantages of a limited common school education began to earn his own livelihood in early youth. Having driven a team on the Erie Canal and worked as a clerk in a store, he made his way to California in 1851, spending four years in that State, the first year working in the mines and subsequently being a salesman in a Sacramento store. Having accumulated a small capital he established a hardware store at De Kalb, Ill., in 1855, carrying on the business for 20 years and combining with this business the occupation of an auctioneer. His daily contact with farmers brought to him a full knowledge of the conditions and opportunities which he was able to improve so well in later years.

Illinois' broad prairies offered special inducements to the agriculturists, but they had great difficulty in securing fences which would indicate the boundaries of their lands and prevent cattle from destroying their crops. J. F. Glidden invented what is known to-day as the Glidden barb wire, and Mr. Ellwood assisted him in obtaining patents, having a half interest in the invention. In 1876 Mr. Glidden sold his interest to the Washburn & Moen Mfg. Company of Worcester, Mass., and they, together with Mr. Ellwood, after a litigation of some years, granted licenses to various factories. At that early stage of the industry the selling price of barbed wire was 18 cents, which has since been brought down to present prices. Through Mr. Ellwood's influence and foresight all the underlying and first patents on barb wire and on machinery for making it were combined together, enabling him, with the assistance of others, to build up one of the largest and most successful business enterprises in the history of the country. For a time Mr. Ellwood was associated with Mr. Glidden, and afterward with the Washburn & Moen Mfg. Company, in the manufacture of barb wire, but later he became exclusive owner and manager of the large establishment at De Kalb, doing business under the firm name of the I. L. Ellwood Mfg. Company, and also of another establishment of a considerable magnitude at the same place, known as the Ellwood Wire & Nail Company, engaged in the drawing of smooth wire and the manufacture of barb wire, nails and fence staples.

Mr. Ellwood has taken a keen interest in his State and in the town of De Kalb. In securing for that city the Northern Illinois State Normal School Mr. Ellwood gave much of his time and means. In 1896 a bill was passed by the General Assembly of the State appropriating $75,000 to the buildings and in 1898 one appropriating $50,000. In addition to this the citizens of De Kalb gave $75,000. By the Governor he was appointed a trustee of the school and is now serving as such.

Stewart H. Chisholm,

THIRD VICE-PRESIDENT.

Stewart H. Chisholm began his career in the steel business in 1869 as clerk in one of the mills of the Cleveland Rolling Mill Company of Cleveland, Ohio, and in 1881 became the vice-president of that corporation. In 1878 he, with his brothers, started the HP Horse Nail Company in Cleveland, to manufacture horse nails. That line of product was, however, dropped in 1880 and the concern went into the manufacture of wire nails. In 1886 Mr. Chisholm resigned the post of vice-president of the Cleveland Rolling Mill Company in order to devote all his time to the HP Nail Company as president and manager. The plant grew until it became the largest wire nail factory in the world, a record which it holds to-day. Mr. Chisholm has had an exceedingly active business life and is now identified with many corporations. He is director of the Western Reserve National Bank of Cleveland, Ohio; president of the Chisholm & Moore Mfg. Company of Cleveland, Ohio; president of the Northwestern Grass Twine Company of St. Paul, Minn.; director of the Planters' Compress Company of Boston, Mass; president of the American Rail Joint Mfg. Company of Cleveland, Ohio; president of the Sears Typo Matrix Company of Cleveland, Ohio; vice-president of the Sears Differential Typewriter Company of Cleveland, Ohio, and president of the Elwell Parker Electric Company of Cleveland, Ohio.

I. L. ELLWOOD,
SECOND VICE-PRESIDENT.

S. H. CHISHOLM,
THIRD VICE-PRESIDENT.

William A. Green,

TREASURER.

William A. Green, treasurer, was born in Richmond, Va., January 14, 1855. His early business training was received in Wall street, New York. In 1884 he removed to Chicago and entered the general offices of the Joliet Steel Company, remaining with that company until the consolidation of Chicago steel interests under the name of the Illinois Steel Company in 1889, when he became assistant secretary of that corporation. He was subsequently elected secretary and held that position until elected treasurer of the present American Steel & Wire Company in January of this year.

Charles S. Roberts,

SECRETARY.

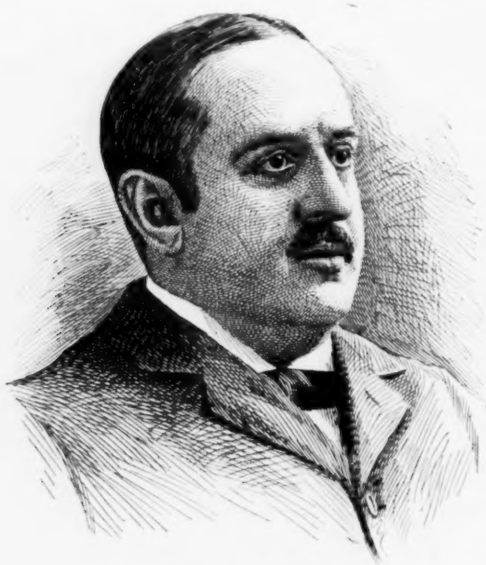
Charles S. Roberts, secretary, was born in Bloomington, Ill., in 1860. In February, 1886, he first became connected with the wire trade, entering the employment of the Southern Wire Company, St. Louis, afterward the St. Louis Wire Mill Company. In 1890, upon the formation of the Columbia Patent Company, he removed to Chicago and was then appointed treasurer and manager of the Baker Wire Company, continuing with the

Consolidated Steel & Wire Company and the succeeding corporations.

Charles T. Boynton,

GENERAL SALES AGENT.

Charles T. Boynton, general sales agent, was born at West Stockbridge, Mass., in 1858. He removed to the West in 1879 and secured employment in the Chicago office of the Washburn & Moen Mfg. Company. He was appointed manager at Waukegan as soon as the company built their works at that place. In 1894 he became manager at both Chicago and Waukegan, and served in that capacity until the sale of his company to the American Steel & Wire Company.



W. A. GREEN,

TREASURER.

Charles A. Honecker,

AUDITOR.

Charles A. Honecker, the auditor of the American Steel & Wire Company, began his business career as bookkeeper for D. M. Osborne & Co., and served in that capacity until 1891, when he was made chief accountant of the Columbia Patent Company. In 1892 he was appointed chief accountant of the Consolidated Steel & Wire Company, holding that position until January, 1897, when he was made cashier of the Illinois Steel Company, whose service he left when elected auditor of the American Steel & Wire Company.

CHARLES S. ROBERTS,

SECRETARY.

Mr. Honecker has become widely known in professional circles during the past few years, through his system of accounting, which has been adopted by many large concerns. He is president of the Illinois Institute of Accountants of Chicago.

Frank Baackes,

GENERAL SUPERINTENDENT.

Frank Baackes, the general superintendent, was born in Germany in 1863. After spending a year as a volunteer at Oberbilk-Duesseldorf, in the works of wire nail machine builders and the wire and nail mills, he in 1879 joined his brother, Michael Baackes at the HP Nail Company, in Cleveland. After working for two years in every department of the mill he was made superintendent of the plant, remaining until 1884. Then he went to Beaver Falls, Pa., to erect a wire nail plant for the Hartman Steel Company. While there Mr. Baackes realized that the wire nail capacity was too large for the purposes for which the article was then used. He appreciated the fact that to extend its consumption the wire nail must supplant the cut nail. After many hard trials Mr. Baackes succeeded in 1885 in introducing what is now known as the Standard wire nail, which grew rapidly in favor. In July, 1885, Mr. Baackes organized the Salem Wire Nail Company of Salem, Ohio, becoming general manager. He developed the business of this company until, with the additional plants at New Philadelphia, Ohio, and Findlay, Ohio, they were absorbed in April, 1898, by the American Steel & Wire Company of Illinois. Mr. Baackes became general manager of this corporation, and, when in January, 1899, they were absorbed by the American Steel & Wire Company of New Jersey, he was elected the general superintendent.

CHARLES T. BOYNTON,

GENERAL SALES AGENT.

Fred. H. Daniels,

CHIEF ENGINEER.

Fred. Harris Daniels was born at Hanover, N. H., on June 16, 1853, but early in life went to Worcester, Mass., graduating at the Worcester Polytechnic Institute from the Mechanical Engineering Department in 1873. Immediately thereafter he entered the employ of the Washburn & Moen Mfg. Company, at Worcester, Mass., as a draftsman and mechanical engineer. In 1874 there was an urgent demand for a technical chemist in the works of the Washburn & Moen Mfg. Company. In order to become more thoroughly informed in this direction Mr. Daniels accepted a position under Dr. Thomas M. Drown at Lafayette College, Easton, Pa., remaining under his instructions for one and a half years as his assistant in the laboratory, where he acquired very full and complete knowledge of the chemical analyses of irons and steels, returning to the Washburn & Moen Mfg. Company as chemist and head of the drafting room.

In 1877 and 1878 Mr. Daniels made two trips abroad in the interests of the Washburn & Moen Mfg. Company,

investigating the latest and best methods of rolling wire rods and producing wire. Upon his return several patents relating to the continuous system of rolling wire rods, automatic reeling of wire rods and improvements relating to the manufacture of wire, were taken out, which were at once introduced into practical use in the plants of the Washburn & Moen Mfg. Company. In 1887

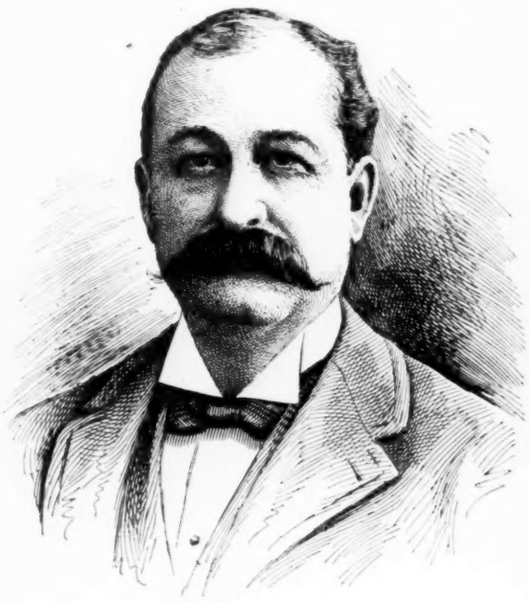
CHARLES A BONECKER,
AUDITOR.

Mr. Daniels patented and put into operation at the Quinsigamond plant of the Washburn & Moen Mfg. Company the combined continuous system of automatically rolling small wire rods directly from a 4-inch wire billet, and several patents on this system were issued. Early in 1891 the Washburn & Moen Mfg. Company decided to erect a large plant for the manufacture of wire rods and wire in the West. It was imperative that this plant should be constructed if the company wished to meet the increasing competition of the West, for the freight from Worcester to Chicago on their Western shipments was a profit in itself. The site selected was

FRANK BAACKES,
GENERAL SUPERINTENDENT.

at Waukegan, Ill., 36 miles from Chicago. The designing and construction of the Waukegan plant was left entirely in Mr. Daniels' hands, and inside of 12 months the largest individual wire rod rolling and wire drawing plant in the world was constructed and put in operation. Many improvements were embodied in the plant, and special attention should be drawn to the continuous rod mills of this plant. For the first time in the history of rod rolling, Mr. Daniels perfected his combined continuous automatic system for producing wire rods from a 4-inch wire billet weighing 250 pounds, comprising a continuous roughing train, which rolled simultaneously two lines of metal in the same mill, from 4 inches square to 1 inch square. The product of the roughing mill was conducted automatically to a continuous finishing mill, where as many as five lines of metal were finished simultaneously in the same mill into a wire rod, and afterward coiled automatically into bundles. By this continuous system a large production is insured, and there is practically no limit to the speed at which the mill can be operated. Rods are also produced of very small diameter, even as small as No. 8, and these small rods issue from the finishing rolls at a speed of nearly, if not quite, 1 mile a minute.

For several years past Mr. Daniels has acted in the capacity of chief engineer and general superintendent of the various plants of the Washburn & Moen Mfg. Company, and during this period has successfully introduced many inventions relating to the manufacture of wire and wire goods, especially in the direction of the well-known system of bonding electric railways by means of the Solid and Crown Flexible bonds, now in general use in



FRED H. DANIELS,
CHIEF ENGINEER.

this country and Europe, and manufactured exclusively by the Washburn & Moen Mfg. Company.

Edward C. Lott,

MANAGER CHICAGO DISTRICT.

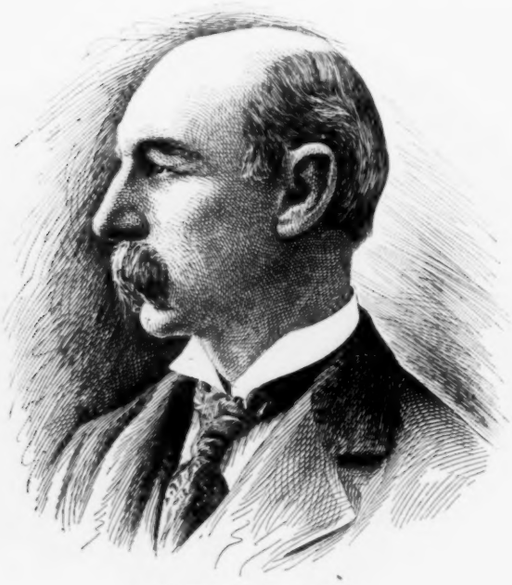
Edward C. Lott, manager Chicago district, was born in Wyoming County, Pa., in 1846. He engaged in gold mining for a number of years in Montana and other Western States. In 1876 he engaged, at De Kalb, Ill., with I. L. Ellwood & Co., incorporated in 1889 as the I. L. Ellwood Mfg. Company, acting as general manager of the business for 20 years, until merged into the American Steel & Wire Company.

Wallace H. Rowe,

MANAGER PITTSBURGH DISTRICT.

Wallace H. Rowe, recently elected manager for the Pittsburgh district of the American Steel & Wire Company, was born in St. Louis in 1861, receiving his education at Hannibal College, Hannibal, Mo., and St. Paul's College, Palmyra, Mo. Mr. Rowe commenced his business career with John W. Gates & Co., in St. Louis, in 1883 in the wire business. When that concern were afterward merged into the Southern Barb Wire Company, and were afterward consolidated with the St. Louis Wire Mill Company, he continued his connection with them. He left St. Louis and went to Pittsburgh early in 1886 to take charge of the wire rod mill of the Braddock Wire Company, at Braddock, Pa., this plant being built to furnish rods to the St. Louis Wire Mill Company. The

plant was extremely successful from the start, and the product has been many times increased since the original plant was built. In 1892 the Braddock Wire Company were taken into the Consolidated Steel & Wire Company, and on April 1, 1898, were consolidated with other plants into the American Steel & Wire Company. The Rankin



EDWARD C. LOTT,

MANAGER CHICAGO DISTRICT.

works is one of the largest individual plants owned by the American Steel & Wire Company, and under the efficient management of Mr. Rowe has always been a very profitable plant. Mr. Rowe, in recognition of his ability, has recently been made manager of the Pittsburgh district of the American Steel & Wire Company, operating seven distinct works, these being Beaver Falls Mills, Beaver Falls, Pa.; Rankin Works, Rankin, Pa.; Pittsburgh Wire Company, Braddock, Pa.; Oliver Wire Company, South Side, Pittsburgh; New Castle Wire Nail Company, New Castle, Pa.; Bessemer steel plant and the

W. H. ROWE,

MANAGER PITTSBURGH DISTRICT.

Edith blast furnace of the Oliver & Snyder Steel Company, Pittsburgh.

T. H. Taylor,

ASSISTANT GENERAL SALES AGENT.

T. H. Taylor was born of New England parentage in Southern Iowa on December 9, 1856, his father being a well-to-do farmer and nurseryman. When 17 years of age he accepted an invitation to assist in a friend's hardware store for a month, during that friend's absence. Infatuated with a mercantile career he could never be coaxed back to the country. After serving for six years behind a hardware counter, and being for about a year a traveler for a hardware jobber, he started in the retail hardware business in Omaha in 1883, and became a jobber in 1889. When in 1891 the Columbia Wire Company took over the selling of barbed wire, he became secretary of the company. In 1892 he accepted the post of Chicago sales manager of the Washburn & Moen Mfg. Company, continuing that connection until the organization of the older American Steel & Wire Company. On April 1, 1898, he was transferred to Cleveland, to take charge of the business of the American Wire Company. As assistant general sales agent, Mr. Taylor handles the sales east of Ohio, Kentucky, Tennessee, Alabama and Ontario, Canada, as well as the export sales.

Albert M. Crane,

ASSISTANT GENERAL MANAGER.

Albert M. Crane, assistant general manager, was born at Oswego, N. Y., August 31, 1855. He became connected with the Boston office of Naylor & Co. in 1877 and was afterward transferred to their office in New

T. H. TAYLOR,

ASSISTANT GENERAL SALES AGENT, NEW YORK.

York and then to their office in Pittsburgh. In 1890 he severed his connection with that great house to accept the position of assistant general sales agent of the Illinois Steel Company, subsequently becoming general sales agent. At the beginning of the present year he resigned that position to become identified with the American Steel & Wire Company.

E. E. Stone,

GENERAL PURCHASING AGENT.

E. E. Stone, general purchasing agent, was born at Hockingport, Ohio, in 1861. His early business experience was gained in the Pennsylvania Railroad Company's service. Some ten years since he was engaged by the Braddock Wire Company in a clerical capacity, attending to the purchasing of supplies. He remained with them until the formation of the larger company, when he was transferred to Chicago.

James S. Keefe,

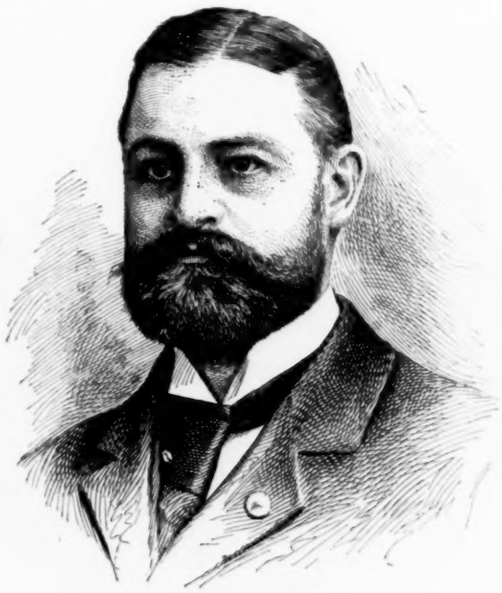
GENERAL TRAFFIC MANAGER.

James S. Keefe, general traffic manager, was born in Boston, January 24, 1864. His business career started in his employment by the Chicago & Northwestern Railway Company, at Milwaukee, in 1879. After working for various railroad companies he was appointed in 1889 by the Illinois Steel Company freight agent of their railroad properties and in 1892 was given entire charge of their track affairs, acting in that capacity until his engagement by the American Steel & Wire Company this year.

F. T. Bentley,

GENERAL FREIGHT AGENT.

F. T. Bentley, general freight agent, was born in 1863 at Charlestown, Ind. After a varied experience which took him to the Far West, he located in Chicago



ALBERT M. CRANE,

ASSISTANT GENERAL MANAGER.

in 1885 and found employment in the general offices of the Louisville, New Albany & Chicago Railroad Company, transferring his services the following year to the Chicago & Northwestern Railway Company, returning to the first named company in 1888 and becoming local freight agent of the Chicago Great Western in 1889, continuing to act in that position until 1894, when he was employed by the Consolidated Steel & Wire Company as general freight agent.

Fred. L. Watson,

ASSISTANT TREASURER.

Fred. L. Watson, assistant treasurer, was born in 1866 at Wolcott, N. Y. Much of his commercial experi-

E. E STONE,

GENERAL PURCHASING AGENT.

ence has been acquired in the banking business. After serving six years as paying teller at Des Moines, Iowa, he removed to Chicago and became connected with the Baker Wire Company, remaining until their purchase by the Columbia Patent Company, when he entered the National Bank of the Republic, at Chicago, also as paying teller. In 1894 he returned to the wire business by becoming connected with the Consolidated Steel & Wire Company, continuing through the changes which have since occurred.

O. Owen,

ASSISTANT SECRETARY.

O. Owen, assistant secretary, was born in St. Louis, Mo., August 14, 1868. After serving as a clerk for the Lake Shore & Michigan Southern Railway Company, he secured a position at Chicago with the Consolidated Steel & Wire Company in 1892, which was his first experience in the steel business. On the election of J. W. Gates as president of the Illinois Steel Company in 1895 Mr. Owen became his private secretary. He continued in that capacity until the beginning of the present year, when he became connected with the American Steel & Wire Company.

Stephen W. Tener,

ASSISTANT MANAGER, PITTSBURGH DISTRICT.

Stephen W. Tener was born in Ireland in 1865, and came to this country, settling in Pittsburgh, in 1873. He entered the office of the Standard Nut Company on

J. S. KEEFE,

GENERAL TRAFFIC MANAGER.

August 1, 1879, and when in 1881 the Oliver Wire Company, Limited, were organized, purchasing the wire manufacturing part of the business of the Standard Nut Company, he entered the staff of the new concern. Step by step he advanced from office boy to entry clerk, invoice clerk, shipping clerk and bookkeeper to cashier. In 1890 he was elected secretary of the Oliver & Roberts Wire Company. He became vice-president of the Oliver Wire Company on February 4, 1897, and president on February 2, 1899.

Charles A. Vogt,

ASSISTANT AUDITOR.

Charles A. Vogt, assistant auditor, was born in Germany, August 10, 1876, removing to Chicago when six years of age. Passing directly from school into the service of the Illinois Steel Company as an office boy in 1891, he advanced steadily until he became chief clerk of the accounting department, which position he held until the beginning of the present year, when he became connected with the official staff of the American Steel & Wire Company.

The Union Iron Works, San Francisco, Cal., have been awarded the contract for two large freight steamships for the American-Hawaiian Steam Navigation Company, recently organized. The first vessel is to be finished in April, 1900, and the second one at a later date. Each will have a carrying capacity of 8500 tons. The first vessel will be 410 feet long, with 51 feet beam and a depth of 32 feet. Her engines are to develop 2500 horse-power.

The Gathmann Gun.

WASHINGTON, March 21.—By a special decision of the Controller of the Treasury the War Department has been authorized to begin the immediate construction of an 18-inch Gathmann gun, designed for throwing a

FRANK T. BENTLEY,
GENERAL FREIGHT AGENT.

heavy charge of guncotton a maximum distance of 9 miles. It will be remembered that *The Iron Age* recently published an exhaustive paper on the subject of the throwing of high explosives by specially designed rifles, which was prepared for the information of the Senate Naval Committee by Captain O'Neil, Chief of the Naval Ordnance Bureau. In the closing days of the last Congress Senator Hanna of Ohio presented an amendment to the Naval Appropriation bill authorizing the expenditure of $250,000 for the construction of two or more Gathmann guns capable of throwing 500 pounds of wet guncotton, to be mounted on the harbor defense monitors authorized by the Naval Appropriation act of 1898. This amendment was strenuously resisted by a number of Senators, whose objections were stated by Senator

F. L. WATSON,
ASSISTANT TREASURER, CHICAGO.

Bacon, who caused Captain O'Neil's report to be read, commenting thereon as follows:

"Captain O'Neil discusses the whole question. He describes each and every experiment and the result of it. He shows that it is an absolutely immature project; that the experiments have shown that it fails as often as it succeeds, and that it not only fails to accomplish its purpose, but that it endangers the gun and absolutely endangers the ship upon which it is used. There has already been spent by the United States Government $50,000 in experimenting upon the use of this particular invention. While the appropriation, as stated in this report, was of a general character, this officer says that it was understood that it was to be used for this particular invention and for this particular explosive. His conclusion, after going through and discussing the whole question, is as follows:

"'Therefore I am of the opinion that before we embark in so perilous and uncertain an enterprise exhaustive trials should be made on shore to demonstrate the safety, accuracy and efficiency of any weapon it is proposed to use afloat.'

"Now, this particular amendment offered by the Senator from Ohio is not only one which proposes that the Government shall invest $250,000 in the purchase of guns in a matter which may prove to be utterly abortive, but it is proposed by the amendment to locate them on the gunboats which are now in process of construction. Here is the report of the Chief of Ordnance of the Navy Department advising against it, not only on the ground that it may prove to be a failure, but that it will be an absolute danger to the ships upon which the guns shall be placed."

Senator Hanna insisted on his amendment, declaring

O. OWEN,
ASSISTANT SECRETARY, CHICAGO.

that the Gathmann gun was a success and that its opponents were known to be actuated by prejudice.

"This gun," he said, "has the approval of Admiral Sampson, one of the best experts in the navy on matters relating to the use of explosives; of Major Heath of the army, who has charge of the experiments at Sandy Hook and who made experiments there with this shell; of Commander Hall, who superintended and had charge of the experiments at Indian Head made under the supervision of Secretary Herbert, who was the first Secretary of the Navy who, from his knowledge and investigation upon this subject, undertook to enlist the interests of the Government to prosecute the experiment.

"I repeat that this, as far as the analysis is concerned, has passed the experimental stage by more than a dozen experiments, the results of which have been before the Committee on Naval Affairs and have been thoroughly considered and thoroughly investigated. We have had before that committee several experts of the navy, one within the last week, Mr. Dashiell, assistant naval constructor, who was fully posted about all the experiments made in the navy. He knows all about them, and he gave his testimony, which is in writing and with the secretary of the committee to-day, to the effect that he believes this Gathmann shell is the beginning of a revolution in high explosives which will bring all the nations of the world to a realization of the offensive and defensive contest that is now going on between an explosive and resistance to it by the very armor plate we have been talking about to-day.

"The United States Government has been fortunate to be the scene of action and to take advantage of the inventive genius of a man who has made a life study

of this subject, who has known for 20 years, from the incipiency of it, all about the manufacture of guncotton and the wonderful results produced from its explosion. Every nation on the globe has been striving during all that time to find a practical method for using this high explosive. This man, Gathmann, after 12 years of constant study, has devised a fuse which makes it entirely safe, and that is verified by the army and navy experts, with this one exception.

"The experiments which were made at Sandy Hook have, without a single exception, been eminently successful--every one of them. If the officer who makes the statement that he does not think this shell or this gun has gone far enough beyond the experimental stage to be practically used could have had his way it would not go any further, and, indeed, it would not have gone so far as it has. I know all that."

Senator Hanna's amendment was adopted by the Senate, but in the conference that followed Captain O'Neil's report was given much weight and the appropriation was stricken out. In the annual Fortifications bill, however, a provision was made for an appropriation

S. W. TENER,
ASSISTANT MANAGER, PITTSBURGH.

C. A. VOGT,
ASSISTANT AUDITOR.

of $75,000, recommended by Secretary Alger, for the construction of one 18-inch Gathmann gun at $65,000 and for powder and projectiles for adequate tests $10,000. Upon the adjournment of Congress the question arose as to whether this appropriation could be made available prior to July 1, the beginning of the new fiscal year, and the Controller, after due deliberation, has decided that the money can be used at once. The War Department is therefore about to begin the construction of this gun under the following conditions:

"1. That the price to be paid for said gun is $65,000, in accordance with the estimate furnished by the Gathmann Torpedo Gun Company, and the estimate is made by the instruction of the Secretary of War; 80 per cent. of this sum to be paid in four partial payments, as the work progresses, on the certificate of the inspector, based upon the value of the material furnished at the periods when the certificates are made, the remainder on the successful test of the gun; that all partial payments made are to be refunded to the United States should the gun fail to endure a test to be prescribed by the Secretary of War; a bond to be sufficiently large to insure the execution of the contract and cover the partial payments to be made as the work progresses.

"2. That the gun is to be of 18-inch caliber, of open hearth forged steel, which must meet the requirements of the Ordnance Department for gun steel, as prescribed in its printed specifications therefor.

"3. The gun to be constructed in accordance with the drawing submitted as part of a proposal made by the Gathmann Torpedo Gun Company, which is now on file at the Ordnance Office; that the shrinkage to be employed for assembling the gun and the accuracy and quality of the workmanship on the gun shall be approved by the Chief of Ordnance.

"4. The breech mechanism, rifling and other details of construction shall be satisfactory to the Chief of Ordnance.

"5. The gun must give, with a 2000-pound projectile, and must safely endure a pressure in the powder chamber of not less than 18,000 pounds per square inch.

"*Note.*—That for the purpose of covering the test, and to verify the plans of Mr. Gathmann as to increased velocity of shell and improvement in the gun beyond what has been heretofore planned, and also to cover the expenses of test, including powders and projectiles, the amount estimated for will be required. Changes in detail of construction may be made from time to time by Mr. Gathmann as the work progresses. This material to be procured from the Gathmann Torpedo Gun Company without advertising."

On behalf of the War Department officials it is pointed out that the proposition to test a Gathmann gun at an ordnance proving ground is materially different from mounting such a gun on a coast defense monitor, as provided by Senator Hanna's amendment, which was stricken from the naval bill. In the event of an explosion at a proving ground there need be no loss of life and no destruction of property except the gun itself, while a similar experiment made on shipboard, if it turned out disastrously, would mean the wrecking of the vessel and the loss of many lives, perhaps of the entire crew.

W. L. C.

Quick Work in Building a Bridge.

In line with the orders from French and English railroads for American locomotives, another striking evidence of European appreciation of the rapid and excellent work of American manufacturers is shown in a contract placed by the British War Office with the Pencoyd Iron Works for a railroad bridge across the Atbara River, in the Soudan country, to facilitate the operations of General Kitchener against the Mahdists. When the British War Office made known its needs and wants to the English bridge builders it was informed that the best they could do was to construct two spans of the bridge in seven months, and complete it in a year. As it was desired to have the bridge completed by the time of the opening of the fall campaign in the Soudan the War Office was obliged to look elsewhere, and, naturally, it came to this country for assistance.

The Pencoyd Company were communicated with and promised to build the bridge within seven weeks after receiving the order. This was so much better than the most sanguine member of the War Office dared to hope for that the order was promptly cabled to this country. It was unaccompanied by any plans or specifications, but the Pencoyd people at once set to work preparing their own plans, and last week the bridge was shipped from the works on its journey to Africa, just five weeks after the receipt of the cabled order. The bridge will be followed in a week or ten days by an erecting gang from the Pencoyd Works, and these will be assisted in the work of erecting the structure by men furnished from the Egyptian army.

The bridge consists of seven spans of 150 feet each, with a total length of 1100 feet. It will be erected across the Atbara River near Khartoum and about 1100 miles south of Cairo.

The Tennessee Report.

The Annual Report of the Tennessee Coal, Iron & Railroad Company for 1898.

In the annual report of the Tennessee Coal, Iron & Railroad Company, N. Baxter, Jr., the president, after reviewing the iron situation reports the production for 1898 as follows. We have added for comparison the figures for 1897:

	1898. Tons	1897. Tons.
Coal	3,679,534	3,457,313
Coke	992,697	916,492
Pig Iron	549,457	541,940

Mr. Baxter reviews as follows the history of the company during the year:

The open hearth steel plant at Ensley will have a capacity of at least 1000 tons of steel products per day. The erection of this plant is going forward as rapidly as possible, but has been somewhat delayed by the extraordinary demand for materials from every direction and by the most unheard of severity of the weather, the winter having been the longest and coldest ever experienced in this part of the South. The increased demand for materials for construction has in some directions increased the cost of the work beyond the estimates submitted based upon cheaper materials and labor. With the completion of the steel plant we will have at our door a regular customer for the entire product of iron from the Ensley furnaces, and in periods of light demand the effect will be good upon the markets reached by Southern iron, while in times of good demand this company's position in the iron market will not be lessened, as they can readily put in blast other furnaces and continue to market their usual amount of iron. It is this vast amount of undeveloped territory and resources which make the position of this company so strong, and they are to-day probably the only concern in similar business in the world who could double or treble their outputs by the simple addition of mining, coking and furnace plants without the expenditure of more than an insignificant sum for lands, mineral properties and railroads.

We have secured control of the stock of the Robinson Mining Company, and by reason of that are able to so direct the operation of the mines worked by that company as to make them more profitable to this company; and since the close of the year we have made a most advantageous trade by which we become the owners of the entire capital stock of the Smith Mining Company, upon terms which are certain to result in great good to this company in a financial way, and by placing them in position to control their supply of material.

After considerable negotiations we closed contracts with parties, afterward incorporated as the Alabama Steel & Wire Company, for the erection of a wire rod, wire and wire nail plant at Ensley, and for the supplying to them for a period of years of a large tonnage of billets at fair prices. This insures our new steel plant one regular and large customer, and with the custom of the Southern rolling mills and of the railroads for our rails there seems no doubt but that we will start out with almost enough trade in sight to run the steel plant to its full capacity. The advantages of such a situation are obvious.

In my last report I spoke of the effort to make of value the Ensley Land Company stock held by this company, and am gratified to be able to report that our efforts in that direction are being realized and that we can now see that the stock is going to be of great value to the company.

I spoke of the building of the Semet-Solvay coke ovens at Ensley in my report for 1897. The plant was almost completed in 1898, 90 of the 120 ovens having been finished and put to work by November 1; but unfortunately a fire destroyed the greater part of their machinery and plant for handling the by-products late in December, and has interfered seriously with the working of the plant since that time, although they again have the 90 ovens working, and hope to have the remaining 30 in shape in a short time. While we have not had a chance to make any long and uninterrupted use of the coke, we feel well satisfied that it will prove to be all that the officers of this company expected.

In anticipation of the increased demand for iron for the steel plant and for the market, we have made many improvements at our furnaces and mines, the principal items being a battery of five Cahall boilers at Ensley furnaces and new haulages in the coal mines. Our engineer has devised and put in operation a new system of haulage which we believe is in advance of anything yet attempted elsewhere, and which reduces the cost, as well as enables us to work out a much larger territory from each mine opening than was heretofore believed to be possible, thus saving the expense of making new openings as frequently as would otherwise have to be done.

Following our plan of adding each year to our mineral properties as much as we worked out, we have bought and paid for out of working account several valuable tracts of mineral lands, and have made some exchanges of lands where it would benefit this company by consolidating their holdings. We also have in progress other exchanges and purchases which will strengthen our position.

Notwithstanding the higher tendency of wages and increased costs of supplies our costs have been kept below previous years, and the improvements now in process of completion will enable us to hold our costs to reasonable figures even with higher prices for labor.

So many things of importance have transpired since the first of 1899 that I feel that this report would be incomplete without some mention of them. The immense consolidations effected in industries similar to ours seemed to make it necessary for us to make some disposition of our railroad property by which we would receive from it some of the benefits which are accorded the railroad properties of similar and competing industries, but which have always been denied to us by the railroad companies of this district. We have, therefore, made a sale of our railroad property of every description upon terms satisfactory to this company, and with such restrictions as will insure us against any increase in that part of the work over the tracks as is done solely for the benefit of this company, but relieving us of the necessity of doing a great deal of work without remuneration, for which other companies are paid or have the work done for them by the railroad companies without charge.

You are familiar with the present demand for pig iron and coal, and with the fact that prices are ruling higher than for years, and it seems proper that I should inform you that the company are preparing to reap some benefit from this condition of the market. We will blow three additional blast furnaces on or about April 1, and a fourth furnace will be ready for work between April 15 and 30. Supplies of coke and ore will be had from our own mines for these additional furnaces, and with a continuation of the present demand, which seems likely, we will prepare another furnace and have it going by midsummer. Looking to the future demand for basic iron for steel making at Ensley, it would be wise to erect at the Ensley furnace plant another stack (this additional stack not to be equipped with stoves, engines and boilers, but simply the furnace stack), so that four furnaces might be continuously kept in blast there.

The refunding of the Eureka and Alice bonds, which bear 7 per cent. interest, has been accomplished since the close of 1898, with a lessening of the interest payments or fixed charges of the company.

The report of the treasurer, James Bowron, shows that the earnings of the mining and manufacturing transactions for the two years, compared as to sources from which they arose, were as follows:

	1897.	1898.
Coal and coke	$232,796.40	$255,954.43
Pig iron	24,094.18	323,193.81
Sales stores	168,823.73	171,541.23
Rents	59,653.28	55,842.16
Sundries (machine shops, royalties, &c.)	13,180.19	16,851.82
	$493,547.78	$823,383.45

In detail the Pratt division earned a profit of $243,516.70, of which $159,095.02 was on coal, $27,780.86 on coke and $44,459.25 on store; the Blue Creek division, $62,788.43, of which $11,320.32 was on coal, $7,867.11 on coke and $32,698.89 on the store; the Blocton division, $69,623.18, of which $27,803.12 on coal and $25,570.16 on the store; the Tracy City division, $20,774.08, and the Whitwell division, $21,616.96. The Alice division made a profit of $52,293.12, of which $43,799.17 was on pig iron; the Ensley division earned $130,414.65, including $110,990.76 on pig iron and $13,723.96 on the store; the Bessemer division is down for $197,430.38, including $158,475.38 on pig iron and $22,710.94 on the store. The Oxmoor division made a profit of $13,425.49 and the South Pittsburgh division $11,500.46. During the year interest payments amounted to $413,372.38, and interest had accrued, but was not due, to the amount of $203,061.67. Fixed charges for the year 1899 are $58,728 per month.

Chief Naval Constructor Hichborn has recommended the abandonment of the course in naval architecture at Annapolis Academy, because of the failure of Congress to make provision for the expenses of conducting it. It is said that some of the American scientific institutions will be asked to provide special courses in naval architecture, and that, hereafter, cadets selected for the Construction Corps of the navy will be sent to these schools, instead of to Annapolis.

OBITUARY.

WILLIAM C. COLBURN.

William C. Colburn, president of the Detroit Bridge & Iron Works, died of paralysis in Detroit, Mich., on March 12, aged 62 years. He was born in Vermont and went to Detroit in 1856, where he entered the machine shop of Charles Kellogg & Co. On the formation of the Detroit Bridge & Iron Works he became secretary of that concern, of which he was subsequently the president. Mr. Kellogg was one of the foremost business men of Detroit and had held a number of public offices. He was also an officer or director in several financial and business companies of the city, where he was highly esteemed.

CHARLES E. CLARK

Charles Everett Clark, one of the most extensive builders in the United States and a director of the Boston Steel & Iron Company, died at his home in Somerville, Mass, on March 20, aged 63 years.

WARREN GREEN.

Warren Green, president of the Louisville Steam Forge Company and the Louisville Car Works, died suddenly on March 20, at the Norton Infirmary, Louisville, Ky., of pneumonia, at the age of 46 years. Mr. Green, who was a son of the late Dr. Norvin Green, president of the Western Union Telegraph Company, was one of the best known citizens of Louisville. Under President Cleveland's first administration he was appointed United States Consul at Yokohama.

EDWIN L. HARRINGTON.

Edwin Le Roy Harrington died at his home in Germantown, Pa., on March 18 from pneumonia, aged 45 years. He was born in Worcester, Mass., and went to Philadelphia when a boy. On finishing his education he entered the machine tool manufacturing business with his father, under the firm name of Edwin Harrington, Son & Co., at 1505 Pennsylvania avenue, Philadelphia. He retired from active business about eight years ago.

PHILEMON P. BOWLES.

Philemon P. Bowles, manager of the Philadelphia branch of the Fairbanks Scale Company, died on March 19 at his home in Philadelphia, aged 51 years. Mr. Bowles was born in New Hampshire, and in 1876 entered the employ of the Fairbanks Scale Company in New York. Three years later he became the firm's manager in Philadelphia.

EDWARD SMITH TABER.

Edward Smith Taber, president and treasurer of the Morse Twist Drill & Machine Company since 1868, passed away at his home in New Bedford, Mass., on the 10th inst., aged 73 years. Called to that position when the company were in their infancy, and which he so long and faithfully filled, he lived to see the plant many times increased in size and become known throughout the world, not only for the high quality of their products, but for their high standard of business management. While averse to taking upon himself the credit for this success, his associates are most glad to attribute a large measure of the general prosperity of the company to his untiring efforts, his faithful activity, and his skill as a director. His services were in demand by other business interests of New Bedford, and for many years he served as a trustee and member of the Board of Investment of the Institution for Savings, and for the past 18 years was a director of the First National Bank, in addition to serving for the past nine years as its president. A type of the older school of business men, whose very presence inspired confidence, Mr. Taber was held in the highest respect and esteem, not only by those associated with him, but by the community at large, and he made himself a power in New Bedford's general business circles, and exercised that power with conservative judgment.

The use of compressed air has long been very popular among railroads, and new forms of usefulness are continually being found for it. Here is a baggage handler operated by air power, the invention of G. H. Wall of Cadillac, Mich. Mr. Wall is connected with the Grand Rapids & Indiana, and his device, now in use on that road, has not only, it is said, done away with the historic grievance of humanity against the "baggage smasher," but enables heavy baggage to be disposed of much more rapidly than can be done by hand. It is operated by air drawn from the train line to a special reservoir, and is handled by the train baggage man by means of suitable cocks on the inside of the car. An auxiliary spring scale device, located at about the center of the vertical length of the baggage support, provides for weighing the baggage as it is handled.

MANUFACTURING.

Iron and Steel.

The A. & P. Roberts Company of the Pencoyd Iron Works, Philadelphia, have posted notices in the different departments of their works that a readjustment of wages will be made on April 28. No mention is made of the amount of the advance.

Spang, Chalfant & Co. of Pittsburgh, operating the Ætna Iron & Tube Works, have notified their men of a 10 per cent. advance in wages, to take effect April 3.

West Duluth Furnace of the Duluth Iron & Steel Company, at Duluth, Minn., which has been idle since 1893, has been leased and will be put in operation within the next two or three months, or as soon as some necessary repairs and improvements can be made. The stack is 75 x 14½ feet, was built in 1889-1890 and rebuilt in 1893. It has three Gordon-Whitwell-Cowper stoves and has an annual capacity of 50,000 gross tons of pig iron.

Riverside Iron Works of Wheeling have given an option on their splendid works to representatives of J. P. Morgan & Co., who will underwrite the new tube consolidation, to be known as the National Tube Works. The consideration is said to be approximately $6,000,000. For every share of Riverside Iron Works stock the new company get two shares of their 7 per cent. preferred and one share of common stock. For those who prefer cash $2 is paid for every $1 of Riverside Iron Works stock. In addition a 15 per cent. dividend goes to the Riverside stockholders from the $450,000 surplus fund now on hand. The representatives of the new concern agree that the concern shall not have a capitalization larger than $35,000,000. It is understood that E. C. Converse of the National Tube Works Company shall be president and Frank J. Hearne of Riverside Iron Works vice-president. The Riverside Iron Works own one of the most complete tube plants in the country and were the first concern to successfully make steel pipe. They have their own coke ovens, blast furnaces and mills, and are in position to make tubular goods at a low cost.

It is stated that the Johnstown works of the American Tin Plate Company, at Johnstown, Pa., containing two mills, will be started up at an early date. The plant has been idle since it was taken over by the American Tin Plate Company.

In addition to the employees of the National Tube Works Company, at McKeesport, Pa., being given an advance of about 10 per cent. in wages, the advance has been made to include all the employees of the National Rolling Mills, the Monongahela furnaces, Boston Iron & Steel Works, Monongahela Steel Works and the Christy Park Seamless Tube Works, all these interests being owned by the National Tube Works Company.

Owing to the scarcity of steel billets the Apollo Iron & Steel Company find it necessary to start up two 20-gross ton acid open hearth steel furnaces at Apollo, to supply themselves with steel. These furnaces have not been operated for some years.

Some extensive improvements are being made at the Buhl Works of the National Steel Company, at Sharon, Pa.

The Miller, Wagoner & Fieser Company of Columbus, Ohio, have re-leased New York Furnace, at Shawneetown, Ohio, and will put it in operation as soon as some necessary repairs can be made.

The statement that the blast furnaces of the Rockhill Iron & Coal Company, at Orbisonia, Pa., which have been idle for a long time, would be started at an early date is untrue. There is no intention of starting these furnaces at present.

The Struthers Iron & Steel Company of Struthers, Ohio, are now installing machinery for an entirely new mill, which will consist of two or three sheet mills, the machinery for which is being furnished by the Lloyd Booth Company of Youngstown, Ohio. The gears, engine parts, &c., are being made by the Walker Company, Cleveland. The boilers are being built by the Stirling Company, Barberton, Ohio. They have also recently installed a complete corrugating works in connection with their galvanizing shop. The Lloyd Booth Company are also furnishing a new set of cold rolls. When these improvements are completed this plant will consist of five sheet mills, two sets cold rolls, galvanizing and corrugating works. They also operate their own bar mill and scrap furnaces for making iron and corrugating sheets.

Anderson, Dupuy & Co., operating the Pittsburgh Steel Works, at McKee's Rocks, Pittsburgh, have just purchased about 8 acres of ground adjoining their plant, which will be used at some time for extensions.

Preparations are being made to start Bellefonte Furnace, at Bellefonte, Pa. This stack was formerly operated under lease by Thos. A. Shoemaker & Co., but is owned by the Bellefonte Furnace Company of the Bullitt Building, Philadelphia. The stack is 70 x 16 feet, was built in 1887, but has been idle since 1893. It is being remodeled and rebuilt under plans of Walter Kennedy of Pittsburgh. The furnace has been leased by Pittsburgh and Eastern parties and will be put in operation in a very short time. It has a capacity of about 100 tons a day,

but this will be increased by the improvements which are being made.

Taking effect Monday, March 20, the wages of all men engaged in construction and track work at the Youngstown works of the National Steel Company, Youngstown, Ohio, were advanced 10 per cent. About 1600 men are now engaged in the building of the two new blast furnaces for this company.

It is reported that Wm. H. Griffith, formerly president and secretary of the Washington Tin Plate Company, Washington, Pa., and John A. Scott, formerly vice-president and treasurer, will organize a new company to build a new tin plate plant either at Pittsburgh or Cleveland. It is stated that contracts for the machinery have already been placed with the West Penn Foundry & Machine Company, at Avonmore, Pa.

Some improvements are being made to the Elba Works of the Oil Well Supply Company, at Pittsburgh, Pa. A new lap weld furnace is being installed, contract for which was given to Alex Laughlin & Co., engineers and contractors, of that city. The present lap weld furnaces are also being rebuilt. The Oil Well Supply Company, like all other tube concerns, are crowded with orders and have all the tonnage on their books they can turn out for some time. This concern have just given their puddlers an advance of 25 cents a ton in puddling, bringing the rate up to $4.25, being 25 cents higher than is paid to puddlers belonging to the Amalgamated Association. The wages of ordinary laborers have also been advanced 10 per cent.

At the annual stockholders' meeting on March 15 of the Tredegar Iron Works, Richmond, Va., the old officers were re-elected.

The Cumberland Rolling Mill, at Cumberland, Md., originally erected for the purpose of rolling iron rails for the Baltimore & Ohio Railroad, has been leased to S. J. McParren, who will operate it for the purpose of producing bar iron and steel plates. The mill has a number of puddling furnaces and eight trains of rolls, among them two 23-inch and one 26-inch.

The stockholders of the Sloss Iron & Steel Company will hold their annual meeting in Birmingham, Ala., on April 5 to elect directors.

Machinery.

The Edward P. Allis Company, Milwaukee, have received an order from the Alabama Steel & Shipbuilding Company for a large rolling mill engine, to be used in the steel works at Birmingham, Ala. The engine has a 52-inch cylinder with a 6-foot stroke. The company have also received an order for the tenth engine for the Metropolitan Street Railway Company of Kansas City, and an order from the New Orleans & Carrollton Street Railway Company of New Orleans for a 1200 horse-power engine for electrical work.

The Grand Rapids Gas Engine & Yacht Company, Grand Rapids, Mich., have recently received an order for a gasoline engine, to be placed in an 18-foot model of an English war ship. The model is being made by a young naval officer in the Royal Navy and will be of sufficient size to exhibit in every detail the construction of the vessel. The same company have been in correspondence with Kanmakakai Molokai, Hawaii, with reference to an engine which a company in that city of our newly acquired possessions desire to purchase.

Some important improvements are to be made by the Farles Mfg. Company, Decatur, Ill. In connection with the regular factory a brass foundry will be put in and various kinds of brass fittings will be made. A new boiler and engine will also be put in the plant.

The Baker Forge Company, Ellwood City, Pa., manufacturers of general forgings, drop forge work and pressed steel, have let contracts for an additional building, 80 x 306 feet, which they expect to have completed about June 1. This concern will increase their capacity to 1000 tons of finished steel per month and have enough work on their books to keep them busy for a long time. Some changes have been made in the officers of this concern, H. R. Rea being elected president to succeed H. W. Bishop, while James H. Baker, formerly vice-president and general manager, has sold his interest and retired. John C. Bole is secretary and treasurer.

The R. D. Nuttall Company, Allegheny, Pa., gear cutters, will make the gears for the contract for the Third Avenue Elevated Railway in New York City secured by the Westinghouse Electric & Mfg. Company of Pittsburgh.

The Lewis Foundry & Machine Company of Pittsburgh are building a Garrett rod mill for the Phœnix Company, Westphalia, Germany. The contract includes two stands of 18-inch rolls, seven stands of 16-inch rolls and several finishing mills. The Lewis Foundry & Machine Company have a great deal of work on their books and are operating their plant to full capacity.

The plant of the Sharpsville Foundry & Machine Company, at Sharpsville, Pa., has been sold by the receiver, J. P. Whitla, to Jas. V. Rose of Sharon, Pa., for $2900. The plant will be improved and remodeled, and put in operation as soon as possible.

H. K. Porter Company of Pittsburgh have made application for a charter of incorporation. The new concern will take over the business of H. K. Porter & Co., builders of light locomotives, whose plant is in that city.

The American Actuation Company is the title of a corporation just charatered under the laws of West Virginia, with a capital of $5,000,000. The purpose of the company, as stated, is the manufacture of machinery for "modifying and regulating power." The incorporators are Myron D. Law, Angelo F. Beales, Jackson Wallace, Albert W. Poor and Albert G. Wheeler, all of New York City.

Fore River Engine Company, Weymouth, Mass., are extremely busy, being engaged upon two new torpedo boat destroyers for the United States Government—namely, the "Lawrence" and the "Macdonough"—work on which is progressing satisfactorily. These boats will probably be ready for their trial trips about May, 1900. The Fore River Engine Company were established in 1885 and their works are located on the Fore River, in Weymouth, 1 mile from its mouth and about 8 miles from Boston Light. The concern now give employment to upward of 200 men and we are advised that this number will be increased to 300 about April 1. Up to the time of receiving the Government contracts above noted the principal business of the company has been the building of steam yachts and marine engines. Recent additions have been made to the plant, including new buildings, machinery and a large galvanizing plant.

The St. Francis Electric Light Company, Forrest City, Ark., are establishing a new machine shop, which is to be managed in connection with their electric lighting plant.

At the annual stockholders' meeting on March 13 of the Warren Foundry & Machine Company, Easton, Pa., the following directors were elected: James W. Long, Wm. Runkle, H. G. Runkle, John S. Riegel, W. H. Hulick, E. J. Fox and A. D. Chidsey.

It is reported that a foundry is to be erected immediately at Rush, Texas, of which Frank Kavanaugh will be general manager. The company are composed of E. L. Gregg, A. H. McCord, N. M. Harrison, Frank Kavanaugh.

The American Emery Wheel Works of Providence, R. I., report an active foreign demand for their goods. They have recently entered an order for $8000 worth of emery wheels and grinding machinery to go to Germany. They state that the demand for their wheels in England is constantly increasing.

The Charles Scott Spring Company of Philadelphia, whose extensive works were damaged by fire on March 13 to the amount of about $100,000, announce that they have already made preparations to rebuild at once, and during the construction of their new buildings will fit up temporarily to take care of all the orders now on their books, as well as other orders which they may receive. They assure their customers that there will be practically no delay in filling orders.

The main building of the plant of the Grey Iron Casting Company, at Mount Joy, Pa., was destroyed by fire, the loss involving about $30,000, on which there is an insurance of $23,000. The foundry and the patterns in the vault were saved. The firm will proceed to rebuild as soon as the loss is adjusted. They had the enlarging of their plant under consideration for some time previous to the fire and their plans in that respect will now be carried out.

The directors of the Westinghouse Air Brake Company of Pittsburgh have declared the regular quarterly dividend of 2½ per cent. and an extra dividend of 2½ per cent., both payable to stockholders of record on April 10.

Macintosh, Hemphill & Co. of Pittsburgh have given their employees a voluntary advance in wages of 5 to 10 per cent., taking effect April 1.

The stockholders of the Standard Underground Cable Company of Pittsburgh will meet in that city on Monday, May 1, for the purpose of voting for or against an increase in the capital stock of the company.

Harry J. Lewis, civil engineer, of the *Times* Building, Pittsburgh, Pa., is drawing plans for a steel loading tower to be erected for J. M. Dalzell of Chicago, president of the Illinois Coal Operators' Association. The tower will be 70 feet high and of modern construction. It is probable the contract for its erection will be placed in Pittsburgh.

The Warden Acetylene Gas Company of New York City have been incorporated, for the manufacture of gas machinery, with a capital of $125,000. The incorporators are David R. Warden, Pittsburgh; Edward J. Fenlon, 75 West Sixty-eighth street, New York; Wm. A. Newell, Flushing, L. I.; Frank A. Wunder, 161 West Seventy-fifth street, New York.

A dispatch states that the O. S. Kelly Company of Ohio have decided to erect a $100,000 factory at Iowa City, Iowa.

The National Machine Company of Detroit, Mich., have increased their capital from $25,000 to $50,000.

The Whiting Automatic Pump Company of Detroit, Mich., have filed articles of incorporation. The company will carry on busines in Lapeer County, Mich., and their capital is $300,000, of which $250,000 has been paid in. The stockholders are Arthur E. Whiting, Detroit, 13,250 shares; James P. Craig, Lapeer, 7500 shares; Richard D. Vail, Lapeer, 2500 shares, and William A. Whiting, Detroit, 1750 shares.

The Rome Tube Company of Rome, N. Y., have been incorporated with a capital of $200,000. Their objects are stated to

be to conduct a general mining, smelting, refining and manufacturing business. The directors for the first year are William R. Huntington, W. J. P. Kingsley, T. H. Stryker, C. C. Reid, J. C. Bissell, J. S. Hazelton and W. L. Kingsley of Rome, A. M. Wardwell of Syracuse and William Pierpont White of Utica.

The Fernholtz Brick Machinery Company of St. Louis, Mo., have been incorporated, with a capital stock of $20,000, by W. H. Fizer, William F. Scott, Ebenezer Rogers and others.

M. D. Flanders of Hamliton, Iowa, intends establishing a machine shop and is in the market for machine tools.

The Pierce, Butler & Pierce Mfg. Company, at Eastwood, N. Y., are building an additional foundry to their plant, which is expected to be ready in about a month.

The National Iron Company of Reed City, Mich., with a capital of $65,000, have filed articles of incorporation with the Secretary of State.

Bridges.

There is some question at Albany whether contractor Robert H. Strong, who has the contract for bridging the Mill Creek, may not cancel his agreement, because since his bid was made amendments have been made to the specifications. Possibly they may again advertise for proposals, but it is contended that the Aldermen have the authority to let the contract to the next lowest bidder.

At Syracuse, N. Y., plans have been received for the hoist bridge to be built across the Erie Canal at Catherine and Almond streets. Division Engineer W. H. H. Gere has the plans, which were made in the office of the State Engineer and have been approved by Mr. Gere. The appropriation for the bridge is $15,000.

The Schultz Bridge & Iron Company of McKee's Rocks, Pittsburgh, have received a contract for a large bridge across the Illinois River at Pekin, Ill. This firm are very busy and will enlarge their works during the summer.

The Massillon Bridge Company have the contract for building the Van Zandt avenue bridge at Toledo, Ohio.

At Painesville, Ohio, Commissioner John Post says the plans and specifications for the proposed new bridge over the river at the foot of Richmond street will soon be submitted to Engineer Morse. The bridge is to cost $75,000.

The Shultz Bridge Company of Pittsburgh have the contract for building a new bridge across the Allegheny River at New Kensington, Pa. The cost will be $89,000 and the work will be started within 15 days, to be completed September 1.

The Committee on Roads, Rivers and Bridges of Hartford, Conn., have under consideration various resolutions relating to the Hartford bridge, which it is estimated will cost $400,000.

There is a bill before the Massachusetts Legislature providing for the extension of Cove street, South Boston. The improvements contemplated would involve an expenditure of $1,000,000, and among other provisions is one for a bridge 50 feet wide.

At St. Joseph, Mo., there is a very strong disposition for a new bridge over the Missouri. There has been considerable building up of Elwood, a suburb of St. Joseph, and there is a movement on foot to rechristen it St. Joseph, Kan. The St. Joseph & Grand Island Railroad Company are the present directors and it is estimated that the new bridge will cost something like $400,000.

At Macon, Ga., 12 bids were received for the Fifth street bridge. The following bidders and amounts were filed: Virginia Bridge Company, $51,900; Indiana Bridge Company, $53,000; Toledo Bridge Company, brick flooring, $46,224; Toledo Bridge Company, wood flooring, $35,434; Groton Bridge Company, wood flooring, $50,000; Groton Bridge Company, No. 1, metal and concrete flooring, $53,000; Groton Bridge Company, No. 2, metal and concrete flooring, $54,500; Grant Wilkins, $42,108; Lasley Bros., brick flooring, $44,000; Lasley Bros., wood flooring, $32,000; Pennsylvania Bridge Company, $58,000; Youngstown Bridge Company, $54,875; Champion Bridge Company, $60,000; Pittsburgh Bridge Company, $56,800; Brackett Bridge Company, A, $34,970; Brackett Bridge Company, No. 1, $41,897; Brackett Bridge Company, No. 2, $28,326.50; Brackett Bridge Company, No. 3, $25,170; King Bridge Company, $25,384.

Cleveland, Ohio, through Geo. R. Wardeb, Director of Public Works, is advertising for bids, to be directed to the clerk of the Board of Control, 105 City Hall, for the contract of the steel and iron superstructure of Centre street bridge, said bids to be opened April 7. Plans and specifications are at the office of the Chief Engineer.

The County Commissioners at Tuskaloosa, Ala., nave contracted for a drawbridge across the Warrior River at Foster Ferry at $33,250, the contract being awarded to the Southern Bridge Company of Birmingham.

Hardware.

The Moran Nut & Bolt Mfg. Company, St. Louis, Mo., advise us that they are exceedingly busy in their regular manufacturing line. Owing to the sharp advances in raw material the prices of bolts and nuts have been increased, but there is no curtailment of orders.

Charles H. Besly & Co., 10 and 12 North Canal street, Chicago, Ill., report that they are very busy in the tap and die department of their factory, Beloit, Wis. They state that they are making many shipments of their new Badger non-adjustable die stock, which cuts the same size every time, full thread at one cut. These are made each complete in the bicycle sizes, as well as in the machine screw and regular bolt sizes. Recent shipments of taps and dies have been made to Rockford, Milwaukee, Rock Island, Moline, Pullman, South Chicago, Joliet, Omaha, London, Lima, Rio de Janeiro and other points.

Maine Mfg. Company, Nashua, N. H., advise us that never before in their history have they done as large a business through the first two and one-half months of the year as for 1899. They state that they have been working their factory to its utmost capacity since early last fall.

G. A. Miloradt & Co., St. Louis, Mo., report that orders for rolling step ladders show a widespread trade activity. Of recent shipments they mention those to New York City; Brockton, Mass.; North Adams, Mass.; Plum Coulee, Manitoba; Topeka, Kan.; Roswell, N. M.; Charlerol, Pa., and Napoleon, Ohio.

Boston & Lockport Block Company have recently completed large additions to their East Boston plant, both in buildings and in enlarged and improved machinery. These changes have been made necessary by the return of more prosperous times, and cannot fail to be of material aid in maintaining the position the company occupy in the trade. The increased sale of the better class of blocks is referred to by them as one of the surest indications of better times, and it is to be hoped that from now on quality will receive more attention than formerly. The company claim that all through the hard times they did not deviate from their former style of weight and quality of their Star brand blocks, a fact to which probably more than any other one thing they attribute their increasing business with returning prosperity.

James McKay & Co., chain manufacturers, of Pittsburgh have decided to remove their plant and will probably locate in McKee's Rocks, just outside of Pittsburgh. The exact location has not been decided upon, but the new plant will be very much larger than the present one and the capacity of this concern for the manufacture of chain of all kinds will be trebled. They are running their works to utmost capacity and have a very large amount of business on their books.

Miscellaneous.

At the annual meeting of the stockholders of the Union Switch & Signal Company, held in Pittsburgh last week, the old Board of Directors was re-elected, as follows: George Westinghouse, A. M. Byers, James H. Willock, Thomas Rodd and William McConway. The Board of Directors elected George Westinghouse, president; E. H. Goodman, vice-president and general manager; James Johnson, secretary and treasurer, and W. D. Updegraff, assistant secretary. The annual report, which was submitted to the stockholders and Board of Directors, makes a showing that is extremely gratifying. The sales during the year amounted to $654,635.33, the interest accounts $1,798.45, making the total earnings $656,334.79. The company have assets of $2,133,574.23 and a surplus of $129,950.09.

Excavation has begun for another large addition to the Northwestern Woven Wire Mattress Company's factory, at Kenosha, Wis. The new building will be 64 feet wide and 136 feet in hight and will be erected on the east side of the main building. It will be four stories high and constructed entirely of brick and iron. During the past four years the business of the company has nearly doubled and the growth of their immense trade during the opening months of 1899 has been unprecedented.

The Flemington Coal & Coke Company of Grafton, W. Va., have been granted a charter of incorporation, with a capital of $2,500,000.

An important feature of the equipment of the Hoosac Tunnel Elevator recently completed at Charlestown, Mass., for the Fitchburg Railroad Company, is the rubber belting which is used to carry the grain in the various galleries, and to which the buckets are attached for lifting the grain to the large storage bins. The contractor for the elevator, James L. Record of Minneapolis, Minn., awarded the order for the belting to the Boston Belting Company of Boston, Mass. It comprised about 7500 feet of 36 inch four-ply, 1600 feet 38 inch four-ply, and 4800 feet of 22 inch six-ply, besides a quantity of narrower belts. The total weight of all the belts was upward of 35 tons. The longest, 36 inch four-ply belt, measured 1500 feet, and several others of the same width were more than 1000 feet long each. Each of the 36 inch belts carries about 8000 bushels of grain an hour. The belting in the original Hoosac Tunnel Elevator, built in 1881-'82, and which was destroyed by fire in February, 1898, was supplied by the Boston Belting Company. Some of the original belts made in 1882, which were not destroyed by fire, are doing good service in the present elevator.

The offices of Julian Kennedy, consulting engineer, will be removed on April 1 from the Vandergrift Building to the sixth floor of the Smith Building, Liberty and Sixth streets, Pittsburgh, Pa.

The report that Jones & Laughlins, Limited, of Pittsburgh, Pa., were to build a number of puddling furnaces is not correct.

The Iron and Metal Trades.

In nearly all branches of the Iron and Steel trades a relatively small but urgent demand for prompt delivery is making further advances imperative. Belated buyers are putting prices up on themselves. The scarcity of material in some lines reaches the character of a famine, and there are many who predict a further rise.

Still, after all, this does not touch the burning question at what prices new contracts will be made to replace those expiring in the second and third quarters. At what level will buyers be forced to take hold again? There are a number of well authenticated cases in which purchases for the second half have been made at prices pretty close to those now ruling. But it is a fact that many buyers are inclined to await developments. This involves one great risk, and that is that no disturbances occur in any one of the chain of links from the ore and fuel in the ground to the finished material. It must not be forgotten that there is a tremendous strain upon the facilities for mining, transportation and the different stages of fabrication. Let anything occur to cause trouble, delay or suspension and the whole industry is disorganized. The weather during the last month furnished a good illustration of this, although it would be ordinarily a very unimportant factor.

In Pig Iron the market is quieter, although still very firm, with an upward tendency. Charcoal Iron has been jumping lately. In Bessemer Pig there has been a halt.

The Rail makers have again advanced prices in the West. It is of interest to note in this connection that the Youngstown plant of the National Steel Company will, it is expected, be in a position to roll Rails in July.

Advances in Finished Iron and Steel have been altogether too frequent and general to enumerate, but prices vary widely according to time of delivery.

In some branches there are still laggards in the matter of advancing prices. A recent letting of about 2000 tons of Bridge work in the West disclosed one bid a little over ½ cent per pound below four other bidders.

Very little is being done in the direction of export orders. Report has it that the mission of John W. Gates of the American Steel & Wire Company in Europe is to arrange for an international agreement in prices for the principal Wire products.

Some of the consolidations, upon which much work has been done, show a tendency toward lagging, as the time for final settlements approaches. The fact is that it is far more difficult now than it has been to get banking firms to participate in underwriting syndicates. The capacity for absorption of new industrial issues seems to be failing somewhat, and a more critical spirit prevails. This does not, of course, mean that really meritorious undertakings do not find all the financial backing needed, but the time seems past when "everything goes."

The advance in Raw Materials is now beginning to tell on the prices of a long line of more highly finished goods, as the time approaches when supplies cheaply bought are being exhausted. The possession of material purchased months since has been too tempting a lever for securing business to avoid a good deal of irregularity in prices, natural in many cases because manufacturers did not believe in the permanency of higher prices for Iron, Steel and Metals. That feeling is wearing off, and with a greater volume of work manufacturers in many lines are raising prices with a more substantial argument to back them than higher cost of Raw Materials, which did not really directly affect them, so far as actual purchases were concerned.

Thus there is a tendency to ask more remunerative prices in many branches of the machinery and supply trades.

As an instance how the feeling has changed we may note the fact that one of the largest jobbing foundries in the East, if not in the country, has withdrawn all quotations, an example which it is likely other concerns will be glad to follow.

In the Metal trade Copper has shown a declining tendency, Lake being close to 17c. Prices abroad have been receding and are now so far below our parity that export sales are practically stopped, the current shipments being on old contracts. This means that soon a large proportion of our supply will be available to cover our home consumption, which certainly has not expanded in so great a degree. When present contracts at much lower prices begin to expire the situation will become much clearer.

In Tin Plate a number of importation orders have gone to the other side, not alone for drawback Plates but also for actual consumption. The Pacific Coast is of course most exposed in this regard.

In some branches of the Iron and Metal trades our rapid advance brings up the question whether it may not pay to reimport material duty free, which may be done if the goods return in the original packages.

A Comparison of Prices

At date, one week, one month and one year previous.

Advances Over the Previous Month in Heavy Type. Declines in Italics.

	Mch. 22, 1899.	Mch 15 1899.	Feb 22 1899	Mch 23, 1898
PIG IRON:				
Foundry Pig, No. 2, Standard, Philadelphia	$15.50	$14.75	$12.25	$10.50
Foundry Pig, No. 2, Southern, Cincinnati	14.25	14.00	.....	9.00
Foundry Pig, No. 2, Local, Chicago	15.00	14.50	12.50	10.75
Bessemer Pig, Pittsburgh	15.15	15.65	12.50	10.40
Gray Forge, Pittsburgh	14 25	13.50	11.50	9.25
Lake Superior Charcoal, Chicago	17.00	15.00	13.00	12 00
BILLETS, RAILS, ETC.:				
Steel Billets, Pittsburgh	25.50	25.50	19.50	15.25
Steel Billets, Philadelphia	26.00	26.00	22.00	17.50
Steel Billets, Chicago	25.50	24 00	21.00	17.50
Wire Rods, Pittsburgh	31.50	31.00	.....	22 50
Steel Rails, Heavy, Eastern Mill	26.00	26.00	22 00	17 50
Spikes, Tidewater	1.70	1.65	1.40	1.50
Splice Bars, Tidewater	1.40	1 30	1.15	1.15
OLD MATERIAL:				
O. Steel Rails, Chicago	11.25	9.50	8.00	8.50
O. Steel Rails, Philadelphia	14.25	14.00	12.00	10.50
O. Iron Rails, Chicago	18.00	16.00	14.00	12 00
O. Iron Rails, Philadelphia	17.00	17.00	13 75	12.50
O. Car Wheels, Chicago	15.00	15 00	13.00	11 00
O. Car Wheels, Philadelphia	15.00	14.50	12.50	10 25
Heavy Steel Scrap, Chicago	11.25	9.50	8.00	7.50
FINISHED IRON AND STEEL:				
Refined Iron Bars, Philadelphia	1.50	1.50	1.20	1.05
Common Iron Bars, Youngstown	1.40	1.35	1.10	0.90
Steel Bars, Tidewater	1.50	1 45	1.20	1.10
Steel Bars, Pittsburgh	1.45	1.35	1 20	0.92½
Tank Plates, Tidewater	2.00	1.90	1.65	1.05
Tank Plates, Pittsburgh	1.85	1.75	1.50	0.95
Beams, Tidewater	1.55	1.55	1.45	1.30
Beams, Pittsburgh	1.40	1.40	1.30	1.15
Angles, Tidewater	1.45	1.45	1.35	1.15
Angles, Pittsburgh	1.40	1.35	1.20	1.10
Skelp, Grooved Iron, Pittsburgh	1.50	1.40	1.35	1.07½
Skelp, Sheared Iron, Pittsburgh	1.70	1.50	1.45	1.10
Sheets, No. 27, Chicago	2.45	2.45	2.25	2.05
Sheets, No. 27, Pittsburgh	2.40	2 35	2.05	1.90
Barb Wire, f.o.b. Pittsburgh	2.50	2.50	2.10	1.70
Wire Nails, f.o.b. Pittsburgh	2.00	2 00	1.60	1.40
Cut Nails, Mill	1.50	1.50	1.35	1.10
METALS:				
Copper, New York	*17 00*	17 75	17.90	12.00
Spelter, St. Louis	6.05	6.00	.....	4.05
Lead, New York	4.45	4.45	4 40	3.70
Lead, St. Louis	4.27	4.25	.....	3.55
Tin, New York	*23.65*	23 80	24.25	14.30
Antimony, Hallett, New York	10.00	10.00	10.00	7.75
Nickel, New York	38.00	38.00	38.00	24.00
Tin Plate, Domestic, Bessemer, 100 lbs., New York	4.10	4.10	3 69	2.90

Chicago. (*By Telegraph.*)

Office of *The Iron Age*, 805 Fisher Building, CHICAGO, March 22, 1899.

Prices continue to advance with no signs of a reaction. All kinds of material are very scarce, and on anything like early delivery a good premium is still being paid by consumers who find themselves short. Some marked advances have been made on certain lines, particularly on Hoops, Charcoal Pig Iron and Old Rails. The outlook is not quite so promising for Bar Iron and Sheet consolidations, and considerable doubt is now expressed whether they will be consummated.

Pig Iron.—Sales agents report considerable small business now being placed, but no large contracts. A great many buyers have come to the point of reasoning that prices may fall off, and they are disposed to wait for developments. It is asserted by sales agents that these buyers are not thoroughly conversant with the condition of the furnace business or they would not only have no doubt about the maintenance of present prices, but would fear a higher range of values. The increase in the production of Pig Iron which is expected will be quite moderate even if all the old furnaces now being prepared for operation should get under way. They will really not afford much relief to the market. The situation has grown stronger during the week, notwithstanding the small amount of business done. Lake Superior Charcoal has made a jump of $2, and Ohio Irons are from $1 to $2 higher, while Southern brands are from 50c. to $1 dearer. Local Irons have also made an advance of 50c. on Foundry and $1 on Soft grades. The quantity available from this source is quite small. We quote for cash as follows:

Lake Superior Charcoal	$17.00 to $18.00
Local Coke Foundry, No. 1	15.50 to 16.00
Local Coke Foundry, No. 2	15.00 to 15.50
Local Coke Foundry, No. 3	14.50 to 15.00
Local Scotch, No. 1	16.00 to 16.50
Ohio Strong Softeners, No. 1	15.50 to 16.00
Southern Silvery	15.50 to 16.00
Southern Coke, No. 1	15.50 to 16.00
Southern Coke, No. 2	15.00 to 15.50
Southern Coke, No. 3	14.50 to 14.75
Southern Coke, No. 1 Soft	15.50 to 16.00
Southern Coke, No. 2 Soft	15.00 to 15.25
Foundry Forge	14.50 to 14.75
Gray Forge and Mottled	14.50 to 14.75
Southern Charcoal Softeners	16.00 to 16.50

Alabama and Georgia Car Wheel	18.00	to	19.00
Malleable Bessemer	.....	to	16.00
Standard Bessemer	.....	to	16.00
Spiegel, 20 per cent.	.....	to	30.00
Jackson County Silvery, according to Silicon	16.50	to	17.00

Bars.—Heavy inquiries have come out during the week, particularly from car building interests. A contract for 5000 tons has been placed by one of the large car works. Sales of Steel Bars have been made on a good scale with advancing prices. Mill shipments of Common Iron are quoted at 1.45c., as bottom, with some mills asking up to 1.63c. Soft Steel Bars are held at 1.60c. to 1.65c., Chicago. Hoops have made another advance to 1.90c., base, Chicago, for Bands. Orders for Steel Skelp, at 1.75c., Chicago, have been turned down by the manufacturers. A heavy demand for prompt shipment has thrown a great deal of Bar Iron and Bar Steel business to the jobbers. They are shipping from stock much faster than they are receiving deliveries from the mills. They quote small lots of either Iron or Steel from stock at 1.65c. and upward. full extras, while they continue to quote 3.20c. to 3.25c. on Norway and Swedish Iron.

Car Material.—All kinds of Car Material are in active demand. Sales of Steel Axles, Pennsylvania Railroad specifications, have been made at 2.60c., which is much the highest price yet reported. Manufacturers of Car Material are passing numerous orders on which they are unable to make the desired deliveries.

Structural Material.—All extras for work on Beams, Channels, &c., have been advanced $1 per ton, but in other respects prices are the same as previously quoted. The demand for Bridge Material is particularly heavy, orders being entered frequently for 1000 to 2000 tons. Contracts have been made by Chicago builders for large structures in New York, Boston and Washington, taking 4,000 tons in the aggregate, but in this vicinity the building trade has been rather quiet. Mill shipments are quoted as follows, Chicago delivery: Beams and Channels, up to 15 inches, 1.55c. to 1.60c.; 18 to 24 inches, 1.65c. to 1.70c.; Angles, 1.55c. to 1.65c.; Universal Plates, 2.15c.; Tees, 1.60c. to 1.70c. Small lots from store are selling at 2c. upward for Beams and Channels, 15-inch and less; 1.65c. to 1.75c., for Angles, and 1.70c. to 1.75c. for Tees.

Plates.—Plenty of inquiries are being received, but small lots only are being booked, as the mills are unable to make anything like early delivery and jobbers' stocks are being drawn upon for those who must have material. Jobbers have advanced Tank Steel from stock to 2.25c. Mill shipments, Chicago delivery, are now quoted as follows: Tank Steel, 2c. to 2.15c.; Flange, 2.10c. to 2.25c.; Marine, 2.40c. to 2.55c.; Common Fire Box, 3c.; Best Fire Box, 3½c. to 4½c.

Merchant Pipe.—The demand continues, but manufacturers are so full of work that they are obliged to pass much of the business now being offered. Boiler Tubes have advanced 5 per cent. Merchant Boiler Tubes are quoted in small lots 1¼ to 1¾ inch inclusive, 40 per cent. off for Iron and 45 per cent. off for Steel; 2 to 2¾ inch inclusive, 52½ per cent. off for Iron and 57½ per cent. off for Steel; 3-inch and larger, 60 per cent. off for Iron and 62½ per cent. off for Steel, with an extra 5 per cent. for carload lots.

Sheets.—Much business could be entered for April and May delivery, but it is almost impossible to find a mill in condition to quote for delivery prior to July. Quotations vary at least $4 per ton, mill shipments being quoted all the way from 2.45c. to 2.65c., Chicago, on No. 27 Black. Galvanized Sheets are very firm at 75 per cent. off, with 15c. freight allowance. Jobbers have advanced the price of Galvanized to 70 and 10 per cent. off, but continue to quote No. 27 Black at 2.70c. and Wood's Smooth at $3, base.

Merchant Steel.—Sales agents are having moderate business, but the demand is fully as much as they are able to handle with the oversold condition of the mills. Heavy shipments are being made on old business. The high prices now asked are being paid with very little protest on the part of buyers. Mill shipments, Chicago delivery, are quoted as follows: Smooth Finished Machinery Steel, 2.30c. to 2.40c.; Smooth Finished Tire, 2.10c. to 2.20c.; Open Hearth Spring Steel, 2.30c. to 2.40c., base; Toe Calk, 2.30c. to 2.40c., base; Ordinary Tool Steel, 5.50c. to 7c.; Specials, 10c. upward. Jobbers are quoting small lots from stock at 2.60c. for Tire, 2.80c. for Machinery, 2.80c. for Spring, and 2.80c. for Toe Calk, full extras.

Billets and Rods.—No sales of Billets are reported, although inquiries continue to be received. The mills are sold far into the future. Bessemer Billets are quoted nominally at $25.50 to $26, and Open Hearth Billets, $28 to $30, while Rods are also out of the market with quotations nominally $34 to $35. Large inquiries for Rods are being received from foreign buyers, which the mills are unable to entertain.

Rails and Track Supplies.—The price of Steel Rails advanced $1 per ton on Monday and the minimum on Standard Sections is now $24 for largest lots, while small lots bring $25 to $26. It is a question of delivery now, and prices cut very little figure. Light Rails are held at $24 to $27, according to section. Plenty of inquiries are being received for both Heavy and Light Sections. The inquiry for Light Sections, however, was never larger, coming not only from all over this country, but also from Europe. Track Supplies are quoted as follows: Splice Bars, 1.35c. to 1.50c.; Spikes, 1.75c. to 1.80c.; Tack Bolts, with Hexagon Nuts, 2.50c. to 2.60c.; Square Nuts, 2.40c. to 2.45c.; Steel Links and Pins, 1.80c. to 1.85c.; Iron Links and Pins, 1.80c. to 1.85c.

Old Material.—The market for Old Material shows a decided change upward. The demand has been much better, some dealers having enjoyed a very active business. Scarcity of material has interfered with trade to a considerable extent, as much more could have been done if the supply was not short. Sales of several lots of Old Iron Rails have been made at $16.50, $17.50 and $18. Some of the dealers are now talking $18.50, while others are of the opinion that the market is hardly sustained at $18. Prices of Old Steel Rails and Heavy Melting Steel Scrap have sharply advanced owing to the entrance into the market of a large local consumer. The demand for Cast Scrap continues heavy, and with a very short supply. Dealers' selling quotations are nominally as follows, per gross ton: Old Iron Rails, $18; Old Steel Rails, mixed lengths, $11.25 to $11.75; selected long lengths, $11.50 to $11.75; Relaying Rails, $15 to $16; Old Car Wheels, $15 to $15.50; Heavy Melting Steel Scrap, $11.25 to $11.75; Mixed Steel, $9. The following selling prices are per net ton; No. 1 Railroad Wrought, $15; Dealers' Forge, $11.50; Fish Plates, $15; No. 1 Mill, $9 to $10; Heavy Cast, $13; Stove Plates, $8 to $8.20; Iron Car Axles, $16.50; Horseshoes, $11.50; Cast Borings, $6 to $6.50; Steel Axle Turnings, $9.50; Iron Axle Turnings, $10; Machine Shop Turnings, $7.50 to $7.75.

Metals.—Copper showed no change during the week, carload lots of Lake being still quoted at 18c., and Western 17⅝c. Spelter is strong at 6.10c. to 6.25c. Pig Lead is quiet. The trade are apparently waiting for the organization of the new smelting consolidation, which is to be completed about April 1. Meanwhile Lead is firmly held at 4.30c.

Tin Plate.—Considerably more business could be done in Tin Plate if manufacturers were disposed to sell at a definite price, but they are only taking orders subject to conditions at time of delivery. Jobbers are having heavy demand from stock, and continue to quote 100-lb. Cokes at $4.60 to $4.85, Ternes at $9.50 to $10.50, 100-lb. Charcoal Brights at $7 to $7.25, with $1.50 for crosses.

Rogers, Brown & Co., Pig Iron merchants, have greatly extended their offices in the Monadnock Building, Chicago. They have taken the space of six of the original rooms, and by changing the partitions have arranged it in four apartments, one of which is used for a counting room, one for a reception room, one for M. C. Armour, the resident partner, and one for Mr. Armour's assistant, E. L. Billingslea. The firm now employ five salesmen, one of whom devotes his entire time to Coke, in addition to what the Pig Iron salesmen do in that line.

St. Louis. *(By Telegraph.)*

Office of *The Iron Age*, 512 Commercial Building, ST. LOUIS, March 22, 1899.

Pig Iron.—It is needless to say that Pig Iron prices are higher; they just seem to grow over night. Squealing is confined to those who would not wake up to the coming conditions. Any number of inquiries are being sent to sales agents and a goodly proportion are from concerns who were sure several months ago that the present prices could not come. The experience of the old timer does not help much to-day, and a new line of reasoning is necessary. Renewed inquiry fails to find an abnormal supply in founders' hands, and the general regret is that past purchases had not been made on larger scale. The anxiety is not so much about price, but concerns the future supply. While there is no doubt that some work was placed with foundries in anticipation of sales, the trade outlook warrants such action. That much could not have been done with assurance and comfort a year ago. We quote nominally, f.o.b. cars St. Louis:

Southern, No. 1 Foundry	15.00	to	$16.00
Southern, No. 2 Foundry	15.00	to	15.50
Southern, No. 3 Foundry	14.50	to	15.00
No. 1 Soft	15.50	to	16.00
No. 2 Soft	15.00	to	15.50
Gray Forge	14.00	to	14.50
Mottled	13.75	to	14.25

Bar Iron.—Old quotations are being taken out of dusty files and attempts made to place orders on their basis. The market exhibits strength, however, and jobbers' price as quoted below must be accepted. There is no permanence to figures given, and the tendency as in other lines is upward. Makers are busy figuring their capacity and how it may be increased. Mill car lots are placed nominally at 1.50c., half extras, St. Louis. Jobbers quote 1.60c. to 1.70c., full extras, from stock.

Rails and Track Supplies.—Activity is seen in Track Supplies and preparations are under way for actual consumption. We quote Splice Bars, 1.50c.; Track Bolts, with Square Nuts, 2.10c. to 2.20c.; with Hexagon Nuts, 2.30c. to 2.40c.; Iron and Steel Links and Pins, 1.80c. to 1.85c.; Spikes, 1.80c.

Sheets.—The supply of Sheets is low in both Black and Galvanized. Mills are not seeking orders nor ready to make promises. No. 27 Common Black are considered as quotable at 2.50c., East St. Louis, in car lots from mill. The mill ready to make delivery must, however, be hunted for energetically. Galvanized is placed by mill agents at 75 and 5 per cent. off in car lots, with the advice that makers must first be consulted as to acceptance.

Pig Lead.—It is difficult to find evidence of transaction, but prices are placed at 4.27c. to 4.30c. Lead Ore brought $26 per 1000 pounds, which shows a slight advance.

Spelter.—Quotations cannot be based on sales, but Spelter is firmly held at 6.05c. to 6.10c. Indications are that lower figures will not soon occur. Prices paid for Joplin Ore were made on the 60 per cent. base in connection with prices of Spelter in St. Louis; $42 per ton was accordingly the basing figure.

Several furnace representatives located in St. Louis have increased their office facilities for the more expeditious handling of the growing trade. We mention recent space additions to the offices of Matthew Addy & Co. and Rogers, Brown & Co.; they have long occupied the smaller quarters, but the greater volume of business has made the changes necessary.

Cleveland.

CLEVELAND, OHIO. March 21, 1899.

Iron Ore.—The past week has shown no change in the scarcity of Ore for sale and the equal scarcity of boats for charter on season contracts. Sales of Ore have, however, been reported at 60c., 85c., and even $1 over the price fixed by the association, and there is a strong probability that 70c. could be secured on carrying contracts running to October 1 were any boats offered. An element that is expected to rather aid the Ore sellers is found in the disintegration of the vesselmen having boats suitable for the Coal trade. It seemed to be a matter of mutual understanding some weeks ago that the vesselmen were to stand out for a rate of better than 30c. on Coal, but several charters were made at that figure the latter part of last week and now the Coal shippers say they will stand out against any very heavy advance in rates, all of which is of course favorable to the chances of the Ore shipper who believes that benefit is to be found in double charters. W. A. Rogers, of Rogers, Brown & Co., who control the Tonawanda Company, the Iroquois furnaces and other Iron manufacturing properties, is gradually getting together a fleet of light draft wooden vessels which will be in a general way suited to the requirements of the Tonawanda Ore trade. He has a list of 40 such vessels and will eventually make from that number a selection of 10 or 12 for purchase. Deals for several of the vessels have been practically closed. Everything now points to the establishment of many new records in the matter of the expeditious loading and unloading of cargoes at lake ports this season. Car dumping and unloading machines of types embracing many radically new features were installed last autumn at Conneaut by the McMyler Mfg. Company of Cleveland, and on the Rochester & Pittsburgh docks at Buffalo, by Webster, Camp & Lane of Akron, Ohio. There has been no opportunity for either to demonstrate their capabilities, but much is claimed in the way of advantages for them. A new type of Ore unloading machine, with clam shell bucket, invented by George Hulett, will be put in operation at the Carnegie docks at Conneaut, and there will of course be considerable new machinery on that dock. Finally a magnificent unloading plant for Ore is being installed at the Steel plant at Lorain. The best unloading time made by vessels at the Carnegie docks at Conneaut last season included the following: Steamer "Yale," 4284 tons, by 11 machines in 8½ hours; barge "Aurania," 4867 tons, by 11 machines in 9½ hours; steamer "Watt," 5025 tons, by 12 machines in 9 hours; steamer "Stephenson," 5226 tons, by 12 machines in 9¼ hours, and the steamer "Linn," 5354 tons, by 12 machines in 9½ hours. At Ashtabula the best record during 1898 was made on the steamer "Coralia," which unloaded 4741 tons by 11 machines in 10 hours and 10 minutes. Another factor which will figure in cargo problems generally will be afforded by the Rail handling machine invented by Captain Day, superintendent of the Carnegie docks at Conneaut, and which invention will, it is understood, pass into the hands of the Carnegie Company. By the use of this invention, which is simplicity itself, a vessel which could not formerly load more than 300 tons per day will be enabled to easily load 950 tons per eight hours. Three machines will be installed at Conneaut, and with the amount of Rails which the Carnegie Company ship through that port the economy of time may be appreciated.

Pig Iron.—No very heavy sales of Pig Iron have been reported during the week. Fag end lots of a few carloads have been disposed of at $15 for No. 1 and $14.50 for No. 2 Foundry at Valley furnace. The Bessemer Furnacemen's Association, it is understood, reached no definite agreement at their meeting the latter part of the week, and in consequence the price for the third quarter remains unfixed. An offer of $14, Valley furnace, for the third quarter delivery was made this week, but was not regarded with any great degree of seriousness. The Lake Superior Charcoal situation shows no development, everything being practically sold up.

Finished Material.—The advance of prices by jumps and bounds continues in all lines. Common Machine Steel Bars are quoted from 1.50c. to 1.75c., Pittsburgh, although in some instances local concerns are still selling out of stock at warehouse at those figures. No. 27 Sheets are quoted at 2.60c., with the demand exceedingly active. Sales of Pipe in less than car lots are being made at 60 and five 10's and 5, and in less than car lots at 60 and five 10's. The Ship Plate market is very firm at 2c. No new sales of importance have been reported. There is a possibility that the contract for the new steamer for the Bessemer Steamship Company (Rockefeller interest), which was understood to have been assigned to F. W. Wheeler of West Bay City, Mich., may not be awarded to him after all. It is announced that the Craig Ship Building Company of Toledo will shortly lay down a vessel of Welland Canal size and designed with a view to transfer to the Atlantic coast, but it is further stated that material for this second steamer was provided for some time ago. The market in Structural material has been characterized during the week by several transactions of some moment. The local office of the Carnegie Steel Company has closed contracts for the material for the two bridges which the Toledo Bridge Company, Toledo, Ohio, will build for the Chicago Drainage Canal. Quotations on Beams are now up with Angles and Channels, I Beams being placed at 1.48½c., Tees at 1.53½c., and Zees at 1.48½c., Cleveland. There has been a good inquiry for Rails for electric lines, the inquiry being both local and from various points in the West. Another advance of $1 per ton has been marked up, the present quotations being $23 per ton, Pittsburgh, in lots of 100 tons; $24, Pittsburgh, lots of less than 100 tons, and $25, Pittsburgh, in less than car lots. The Van Dorn Iron Works Company have the material all in hand for the 16-story Williamson Building at Cleveland, upon which work is to be commenced April 1, and will endeavor to make this, their first large building, a record for rapidity of erection.

Old Material.—The supply still continues inadequate to the demand, with the outlook for no very immediate remedy of conditions. Prices now in quotation are as follows: Steel Melting, $13; No. 1 Wrought, $17; No. 1 Cast, $12.50; Car Wheels, $17; Cast Borings, $8.25; Turnings, $9.50. Sales are claimed to have been made at these figures in the instance of each grade, but it is understood that in case of one or two of the above quotations the conditions of sale were rather exceptional.

Birmingham.

BIRMINGHAM, ALA., March 20, 1899.

All reports agree in the statement that the demand, for the time being anyway, has materially slackened. Opinion is divided as to the cause and duration of present conditions. One thing is sure—*i.e.*, the furnaces are not encouraging demand by seeking buyers. The latter have sought the former. No one is disgruntled at the quieter demand, for all have sold enough to be in comfortable condition, and if buying is renewed it will be found difficult to secure desirable deliveries except at a still further

advance. Some have sold freely for the last half of the year and are fully sold up for first half. Some have accepted no orders beyond June and have been and are yet very conservative in letting go. So, while there is little danger of great scarcity, there will be comparatively so little on the market that anything like activity in demand will give us constantly hardening prices. Quotations are yet simply impossible to give in detail, as extreme prices are withheld in most cases. The figures here given are from actual sales and are inside prices.

Gray Forge is quoted at $10.50. It sold also at $10.75. No. 2 Foundry is quoted at $11.50 and it went also at $12 and some at $12.25. Some Soft also went at $12. Foundry Forge has been same as Gray Forge to 25c. above. There is a clean advance of 50c. over the preceding advance, and in cases it has been 75c. and $1. Last November we quoted No. 2 Foundry at $7.25. So the extreme advance since then has been $5. If all the interests were selling for same deliveries the quotations would be more uniform. But as the deliveries vary so much the quotations must be ragged. Besides there are "pick up" lots that are turned quick when any profit is sighted. No. 2 Foundry was sold to Western point at $14.60 and $15 delivered, at a $3.60 freight rate. Nominally it was $11 and $11.40 here, but it was really materially more. There was some trading in warrants, Gray Forge selling at $9.75 and No. 3 Foundry at $10.25. Some No. 2 Foundry went at $10.75. The export trade was reported as very light and can be quoted as nominal. Freight room was offered sparingly and none was reported as taken.

Several furnaces in the district will be blown in that have been idle for several months. Besides those announced by Mr. Baxter in his report to the stockholders of the Tennessee Company as being prepared, there are others being made ready. So that by June—possibly by May—six stacks will be added to the producing capacity of the district. It has been a task to arrange for the Coal and Coke necessary, but finally all obstacles were overcome and provision made for a continuous run. Some new Coal mines have been opened and every oven that can be utilized for Coke will be at work. It has been made public now that negotiations are being conducted for the establishment of the Tube works as well as for a Beam and Girder plant at Ensley City. They are reported as being favorable so far, and will if successful, the projectors say, add 5000 to the working population. Ground has been broken for the plant in wood working machinery, which will be in operation by May, and the flour mill is receiving material and will break ground for the foundation this week.

The intention of the Tennessee Company to concentrate at Ensley City their machine and foundry shops is announced by A. M. Shook in his report as president of the Ensley Land Company, and there is the further prospect of the erection of an additional furnace to the Ensley plant. All of this redounds to the material benefit of Ensley. The action of certain furnace interests in the last few months indicates to the observing man an inclination on their part to avoid as far as possible the handling of any of the raw material by third parties. By the concentration in their own hands of the various branches of supply they eliminate every unnecessary expense and reduce to minimum cost materials of production. This has commenced, and the policy of not only owning the Coal, Ore and Stone, but of mining and making themselves their own furnace stock will be the prevalent system in this district. It has a strong foothold now and is growing.

Inasmuch as it has been asserted that the rolling mills here would not enter the trust it may be well to say that they are in daily expectation of orders to shut down and take inventory as preliminary to necessary steps to transferring these interests to the trust.

There is considerable railroad talk in connection with the district. The L. & N. R.R. are building a link in their system south of Selma making an air line to Pensacola. A line is being surveyed from a mineral branch terminus south of here to Selma. When they are completed we have practically a new air line route from here to Pensacola. It has passed beyond the stage of probability. It is a certainty. Then the Illinois Central R.R. have reached the Coal fields of the Walker Company. But they haven't stopped; they are pushing right on to Decatur. From there they will build to Nashville. Being located at Louisville, Nashville, Memphis, New Orleans, one has only to glance at the map to be convinced that Birmingham also will be a base of supply in this game of railroad strategy.

There is more or less complaint in our minor industries of the increasing uncertainty in prices of finished product, which interferes with definite estimates on new work. In some cases requests for bids have been withdrawn to await more propitious circumstances, and about a good deal of work there is a growing hesitation. But it may be only temporary. As it is there is no cause of complaint, as everybody so inclined has a shop full of work, and except in few cases enough to keep them running until midsummer.

Philadelphia.

Office of *The Iron Age*, Forrest Building, PHILADELPHIA, PA., March 21, 1899.

The upward tendency of prices is continued, and practically everything on the list commands more money than it did a week ago. The scarcity of material shows no signs of abatement, and while that continues it is useless to expect an easier market. A curious feature in the situation is the demand for material for the West. Plates are eagerly sought for, and since the adoption of the Western schedule of extras on Bar Iron, inquiries for large lots have been coming in almost ever since. The mills are too full of local orders, however, to permit anything of that kind being taken, although if the business could be handled they would be glad to quote on it, but under present conditions there is no alternative but to decline to name a price. The demand is an all round one, however, as it takes in every class of buyer and every class of material. Sellers quote what they regard as fancy prices, just to show that they are willing to do business, although at the same time they hope that the figures will be too high. The offer is almost invariably accepted, and the next quotation at a still higher figure shares the same fate. This has continued for several weeks without the first sign of a reaction, and in view of the extremely depleted condition of stocks it is the opinion of conservative people that there is likely enough to be several weeks more of a continuous upward movement. For the present at all events nobody talks or thinks of a reaction, and judging from appearances they are probably right.

Pig Iron.—The market seems to gain strength on every rise. A price of to-day, judging by recent experience, may be no price at all two or three days later on, the main point being to get orders placed, rather than to question at what price they should be placed. At the moment $16 to $16.25 appears to be the quotation for No. 2 X Foundry, and as high as $15.50 for either No. 2 Plain or for good Mill Irons, the latter being in especially short supply. A good deal of business during the week was done at less money, and possibly some holders might yet go below the prices named, but as a rule higher rather than lower prices appear to be looked for. There is an extraordinary scarcity of Iron, and as many large buyers appear to be anxious to contract for deliveries during the last half of the year, it certainly does not look as though lower prices were in sight, although of course after such a rapid rise reactions of more or less importance are by no means impossible. Meanwhile, however, with such extremely small stocks, and steadily increasing demand, neither buyers nor sellers are troubling about what from all appearances is a very remote contingency. To-day's prices for seaboard or equivalent points for delivery are about as follows: No. 1 X Foundry, $16.50 to $17; No. 2 X Foundry, $15.75 to $16.26; Plain, $15 to $15.50; Standard Mill Iron, $15.25 to $15.50; Basic, $15 to $15.25; Low Phosphorus, $18.50 to $19.50.

Billets.—There has been nothing done in this market during the past several days, one reason being that Steel was hard to get at any price, the other being that buyers prefer waiting to paying the extreme figures that would be required to induce a sale now. Quotations are nominally somewhere around $27, but it is hard to tell where Steel could be had.

Plates.—Prices are again higher, 2c., delivered, being a very inside figure. It is extremely difficult to place orders, however, as mills are so full of work that they are totally unable to deal with the large amounts which buyers call for. Inquiries from points in the West and Northwest attest to the crowded condition of mills in that territory, so that the shortage is not confined to one district, but is evidently the same all through the United States, as well as in most of the foreign markets. Seaboard quotations for carload lots and upward are about as follows: 2c. to 2.10c. for ¼-inch and thicker; Shell, 2.20c.; Flange, 2.35c.; Fire Box, 2.45c. to 2.50c.

Structural Material.—There is nothing to report except an increasing demand, and increased pressure for deliveries. Prices of Angles have been advanced, but that has no significance, as sales for many weeks past have been at figures in excess of the combination rates, and still continue so, notwithstanding the official advance. Seaboard prices are nominally as follows, but in actual transactions are from a dollar to two or three dollars per ton beyond quoted rates: Angles, 1.53c.; Beams, 15-inch, 1.53c.; Tees, 1.58c.; Zee Bars, 1.57c.; Bulb and Deck Beams, 1.73c.

Bars.—At a meeting held here last Friday the Eastern Bar Iron manufacturers unanimously agreed to adopt the Western schedule of extras. This will be particularly advantageous to the export trade, which has been considerably mixed by having quotations with two different lists of extras. The trade are taking to it quite

kindly, although during the past 20 years every attempt made to harmonize the matter until now met with discomfiture. It is a noteworthy fact that its adoption brought inquiries from the West for thousands of tons, but as Eastern mills are quite as crowded with business as those of the West, quotations could not be given. Seaboard prices are the same as last week, but it should be understood that the new list of extras is in force. Prices for seaboard or equivalent deliveries in carload lots and upward: Ordinary Bars, 1.30c. to 1.35c.; Refined Bars, 1.40c. to 1.50c.; Test Bars, 1.60c.; Steel Bars, 1.55c. to 1.60c.

Sheets.—The demand is simply immense, especially for the low numbers, which have again been advanced pretty nearly $5 per ton. Price seems to be no object so long as deliveries can be had, so that quotations naturally cover a much wider range than usual. To-day's figures are about as follows for best makes (Common Sheets two-tenths less): No. 10, 2.50c.; No. 14, 2.60c.; No. 16, 2.70c.; Nos. 18-20, 2.80c.; Nos. 21-24, 2.90c.; Nos. 26, 27, 3c.; No. 28, 3.10c.

Old Material.—There is nothing more difficult to quote than Old Material. In Steel Rails alone sales have been made within a day or two at a divergence of $2.50 per ton, and even more than that on Railroad Scrap, consequently we can only indicate to-day's range, which is about as follows: Cast Borings, $9.50 to $9.75; Wrought Turnings, $10.50 to $11; Machinery Cast, $12.75 to $13.50; Old Car Wheels, $15 to $15.50; Heavy Steel Scrap, $14.50 to $15; Steel Rails, $14.25 to $15; Iron Rails, $17 to $17.50; Choice Railway Scrap, $16.75 to $17.50; Iron Axles, $20 to $21; Steel Axles, $16.50 to $17.50.

(By Telegraph.)

Conditions are much the same as reported by mail. Prices are strong, without the slightest sign of a reaction. The market is of a more settled character, however, as though further advances are not greatly feared for the present, but buying to meet pressing requirements keeps prices up to the top notch, which in all probability will continue during the next few weeks. The demand shows no abatement, but is restricted more to the near months than to those later in the year.

Cincinnati. *(By Telegraph.)*

Office of *The Iron Age*, Fifth and Main streets, CINCINNATI, March 22, 1899.

It is with evident satisfaction that dealers at this point are noting the changed pulse of the Pig Iron market. The excitement fever of the previous weeks has very largely disappeared, and has been succeeded by a much more steady condition. Iron is just as scarce and hard to get as it has been. Indeed, if there is any change in that direction it is only to intensify the statements of shortage of supply. Buyers seem to have accepted the situation and are making the best of it. Furnaces have made no further advances except in cases where quotations were evidently below the general market. Some Northern Irons show a sharp advance on this account and Southern Silveries are also higher. There has been quite a good aggregate of Iron disposed of during the week, and inquiry for lots of 100 to 1000 tons is brisk. The demand for Charcoal brands, both North and South, is strong, and continues beyond the ability of producers to satisfy. The volume of complaint regarding delayed deliveries is great. There is some speculative Iron which will probably go on the market soon, as the owners seem to be thinking that the high water point has about been reached by price-lists. Now, in regard to quotations, it may be said that there has not been much of a change of any sort. It is claimed that a little No. 2 Foundry has gone at $12, Birmingham, but it is certain that $11.50 is much nearer the market to-day. Some of the furnaces quoting fancy figures are known to be so well sold up that they are naming prices sufficient to turn away trade without admitting that they are out of the game. The quotations given herewith may be regarded as fairly expressing the actual condition of the market, and on this basis the tone is strong and healthy. We quote, f.o.b. Cincinnati, as follows:

Southern Coke, No. 1	.... to	$15.00
Southern Coke, No. 2	.... to	14.50
Southern Coke, No. 3	.... to	14.00
Southern Coke, No. 1 Soft	.... to	15.00
Southern Coke, No. 2 Soft	.... to	14.50
Southern Coke, Gray Forge	.... to	13.25
Southern Coke, Mottled	.... to	13.25
Ohio Silvery, No. 1	.... to	16.00
Ohio Silvery, No. 2	.... to	15.50
Lake Superior Coke, No. 1	.... to	15.50
Lake Superior Coke, No. 2	.... to	15.00

Car Wheel and Malleable Irons.

Standard Southern Car Wheel	$15.25 to $ 5.75
Lake Superior Car Wheel and Malleable	15.75 to 16.25

Plates and Bars.—The market is exceedingly strong and asking prices, while not higher, are easily obtainable when the goods can actually be delivered. The volume of business continues good. We quote, f.o.b. Cincinnati: Bars, wholesale, 1.35c. to 1.45c., with half extras; Bars, retail, 1.50c. to 1.60c., with full extras; Plates, 2c.; Bar Angles, 1.55c. to 1.60c.; Sheets, No. 27, 2.35c. to 2.40c.; No. 10, 2.10c.; No. 16, 2.25c.

Old Material.—The market is stiff and strong, with considerable trading at last week's maximum figures. Some dealers are claiming an advance and may possibly be getting it. We quote the following prices, f.o.b. Cincinnati: No. 1 Wrought Railroad Scrap, $13.50, net; Cast Scrap, $10.50, gross; Car Wheels, $13, gross; Iron Axles, $17, net; Iron Rails, $15.50; Steel Rails, $10.

Pittsburgh.

Office of *The Iron Age*, Hamilton Building, PITTSBURGH, March 22, 1899.

(By Telegraph.)

Pig Iron.—The market on Bessemer Pig seems to be a trifle easier, and while the furnaces have not as yet fixed a price for last half of the year, they would sell Iron for that delivery at $14.50, Valley furnace. However, there is not much inquiry, consumers evidently being well covered up to July 1. The market may be fairly regarded as $14.50, at Valley furnace. Gray Forge is in active demand and higher, and has sold at $14.25, Pittsburgh. Foundry Iron is in very active demand, and is scarce and hard to get. We quote Bessemer Pig at $14.50; Gray Forge, $13.50 to $13.75, both at Valley furnace; No. 1 Foundry, $15.25 to $15.50; Gray Forge, $14.25 to $14.50; Bessemer, $15.15 to $15.25, all f.o.b. Pittsburgh. We note a sale of 1000 tons of Gray Forge at $14, Pittsburgh, made three or four days ago.

Billets.—There is practically no Steel to be had. Buyers who ask mills for prices on small lots are advised that they are sold up and have no Steel to spare. In exceptional cases and to a regular customer small lots of Billets have been sold at $25 to $25.50, maker's mill. There is really no market, prices depending altogether on the urgency of the buyer.

Sheet Bars.—There is nothing doing, the National Steel Company not having fixed a price. It is reported that Sheet Bars have been resold by consumers at $28, Pittsburgh.

Muck Bar.—The market is higher, and we can note a sale of 500 tons at $24.50, Pittsburgh.

Spelter.—Best grades of Spelter are quoted at 6.25c. this morning, f.o.b. Pittsburgh.

Tin Plate.—Reliable advices are that several large jobbing houses have practically placed orders abroad for large lots of Tin Plate of lighter gauges for importation to this country. While the price here is not high enough to allow Tin Plate to be imported now, yet it is believed that by the time this Plate arrives here the price of domestic will be high enough to allow it to come in. It is stated positively that Tin Plate can be imported to San Francisco at a less price than domestic can be delivered there.

(By Mail.)

The Iron trade has been without special feature since our last report. The scarcity of material of all kinds is as great as ever, and it is hard to find a mill that has anything to spare for delivery within 30 or 60 days. Buyers who have been caught short and are compelled to go into the market to replenish stocks have to pay whatever price the seller sees fit to make. As an instance, we are advised of a recent sale of 200 tons of 14-gauge Sheets, for spot shipment, for which 2.65c. was obtained. Of course, this is very much higher than the actual market, and is cited to show what a buyer must contend with when he has to have material. The market for Bessemer Pig is easier, and Iron for delivery in second and third quarters could be bought easily at $14.50, Valley furnace. Steel is practically at a standstill, only a stray buyer coming into the market occasionally for a small lot, for which he has to pay from $25 to $26, depending on the mercy of the seller.

Finished Material is without special change in prices. An exception is that Boiler Tubes have been advanced 5 per cent. on base discounts. There has not been the excitement in the market in the past few days that characterized it for three or four weeks, and a lull that would stop the upward march in prices would be welcomed. There is plenty of business to keep the mills busy up to July, but the situation after that date is somewhat in doubt.

Ferromanganese.—A lot of 300 tons of foreign Ferro was recently sold for delivery in this market at about $55, Pittsburgh. Prices to-day, however, are considerably higher, and the local producer quotes at $65 to $70 at mill, depending on the order.

Structural Material.—There has been no change in prices since our last report. The demand for Shapes of all kinds is good, and this promises to be a banner year in tonnage. Some big jobs are up, but are not far enough along yet to be placed. The Dupuy Building, about 800 tons, was taken by a local firm. We quote: Beams and Channels, 15-inch and under, 1.40c.; 18, 20 and 24 inch, 1.50c.; Angles, 1.40c.; Zees, 1.45c.; Tees, 1.50c., f.o.b. Pittsburgh.

Plates.—The condition of the Plate market is practically the same as noted for several weeks past. Mills are filled up to the limit with tonnage, and Plates for prompt shipment are practically impossible to obtain. We quote as follows: Tank, ¼-inch and heavier, 1.85c. to 1.90., depending on delivery wanted; Flange, 2.10c.; Marine, 2.25c.; Ordinary Fire Box, 2½c.; Locomotive Fire Box, 3.25c. to 3.50c.

Sheets.—We are advised of a sale of 200 tons of 14-gauge Black Sheets for spot shipment at 2.65c., maker's mill. This, of course, is much higher than the actual market. We can report a heavy inquiry for Sheets, with the mills practically sold up to July, and not willing to take on much additional tonnage. Prices are higher, and we quote No. 27 Black Sheets, Smooth Finish, at 2.40c.; No. 28, 2.50c. There has not been much done in Sheets for last half of the year, owing to the fact that Sheet mills have no idea what Bars will cost. There is a heavy demand for Galvanized Sheets, with prompt shipments very hard to obtain. The Apollo Iron & Steel Company have started up some open hearths at Apollo, to help them out on Steel. We quote Galvanized Sheets in large lots at 75 per cent. off, with 15c. freight allowance. Jobbers quote higher prices for small lots.

Machinery Steel.—Mills are well sold up, and for anything like early deliveries very high prices are asked. We quote: Machinery Open Hearth Steel, Soft, 2c.; Hard, 2.25c.; Crucible, 4c.; Spring Steel, Common, 2.25c.; Crucible Analysis, 2.75c.; Genuine Crucible, 3.50c.; Toe Calk Steel, 2.25c.; Pick Steel, Open Hearth, 3¼c.; Crucible, 4.50c.; Cant Hook, Open Hearth, 3¼c.; Crucible, 4c.; Wedge Steel, Open Hearth, 3¼c.; Crucible, 4c.; Tire Steel, ¾ x 3-16-inch and heavier, 2.10c.; Plow Slabs, 3-16-inch and heavier, 4 inches wide and over, Bessemer Open Hearth, 2.50c.; Hard Open Hearth, 3c.; Crucible Analysis, 3.25c.; Genuine Crucible, 4c.; Lay Steel, Rolled, 3¼c.; Hammered, 4c. The above prices are f.o.b. Pittsburgh.

Bars.—There is a heavy inquiry for both Iron and Steel Bars, and some large orders are being placed both with Valley and Pittsburgh mills. In a recent large contract for Bar Iron, placed among several Valley mills, a somewhat lower price was made than would be accepted for ordinary business. The Valley mills are well sold up for the next two or three months, and are very firm in their ideas as to prices. We can state that the move looking to the consolidation of some 35 or 36 of the leading Bar mills in the West and South is progressing favorably and gives indication of being put through successfully. Three of the leading Valley mills, Andrews Brothers, Mahoning Valley and Brown-Bonnell, will probably be included in the consolidation, if it is effected. We quote Common Iron Bars at 1.40c. to 1.50c., the lower price being made only for exceptionally attractive orders. Mills rolling Steel Bars are well sold up, and for the small tonnage they have to spare are quoting 1.45c. to 1.50c., depending on the order.

Rails.—The Johnstown mill is reported to be sold up to September. No large contracts are in the market. We quote Standard Sections at $23, Pittsburgh; Light Sections, 20 to 25 pounds, $26; 30 to 56 pounds, $25.

Pipes and Tubes.—Taking effect this date, Tuesday, March 21, base discounts on Boiler Tubes have been advanced 5 per cent. The demand for Pipe continues abnormally heavy, and the mills are turning away two or three times as much business as they are taking. The project to consolidate the leading Pipe mills into the National Tube Company is making progress and is almost certain to be successfully consummated. We quote Black and Galvanized Merchant Pipe at 60 per cent. off, with five 10's additional for less than carload lots, f.o.b. maker's mill, and an extra 5 per cent. in carload lots delivered in free districts. The demand for Casing and Oil Country goods of all kinds is very heavy, and mills are behind in deliveries. We quote Screw and Socket Joint Casing at 52½ per cent. and 10; Inserted Joint, 52½ per cent., with an extra 5 per cent. to dealers. As intimated in this report last week would be the case, base discounts on Boiler Tubes have been advanced 5 per cent. We quote 1¼ and 1½ inch, Iron or Steel, at 45 per cent. off list; 1¾ to 2½ inch, inclusive, Iron, 55 per cent.; Steel, 60 per cent.; 2¾-inch and larger, Iron, 60 per cent.; Steel, 62½ per cent., with an optional 5 per cent. to dealers.

Iron and Steel Skelp.—Mills rolling Skelp are so well filled up that early delivery cannot be had. Prices are higher, and Sheared Steel has sold up to 1.70c. and Sheared Iron 1.75c., for reasonably early delivery. We quote: Grooved Steel Skelp, 1.30c. to 1.35c.; Sheared Steel Skelp, 1.60c. to 1.75c., depending on delivery; Grooved Iron Skelp, 1.50c. to 1.60c.; Sheared Iron Skelp, 1.70c. to 1.75c., all f.o.b. Pittsburgh, four months, or 2½ per cent. off for cash 30 days. We note a sale of 300 tons of Sheared Steel Skelp at 1.70c., and 1000 tons of Sheared Iron Skelp at 1.75c.

Connellsville Coke.—Last week there were 16,081 ovens in the Connellsville region active and 2560 idle, the production being 167,850 tons. The Dunbar Furnace Company fired 50 ovens in the Parrish plant. Prices on Coke are very firm, and we quote strictly Connellsville Furnace Coke for delivery in second half of the year at $1.75 a ton, and Foundry Coke is held at $2.15 to $2.30 per ton.

New York.

Office of *The Iron Age*, 232-238 William street, }
New York, March 22, 1899. }

Pig Iron.—While the larger foundries are pretty well covered for some time to come, making the current tonnage of sales small from that source, the smaller jobbing foundries keep coming into the market steadily for early deliveries, for which current prices must be paid. The stream of these small orders is quite large in the aggregate and with the short supply keeps prices at the top notch, with an advancing tendency. Odd lots of iron carried for a long time by the owners are cropping up from unexpected sources, but these when offered near the market are being promptly absorbed. Among those recently offered is one lot of about 7500 tons, held in the Lehigh Valley by a furnace plant long idle. There is quite a business in warrant iron, there being a number of sales at the Consolidated Exchange. Among the recent ones we note on Monday 200 tons of April Iron at $11 for Alabama No. 2 and 100 tons of No. 3 Foundry at $10.50. On Tuesday 100 tons of August No. 3 sold at $11. We quote as follows: Lehigh and Schuylkill Irons, No. 1 Foundry, $16.25 to $16.75; No. 2 X, $15.50 to $15.75; No. 2 Soft, $15.25 to $15.50; No. 2 Plain, $15 to $15.25; and Gray Forge, $15.25 to $15.50. Southern brands are quoted: No. 1 Foundry, $15.75 to $16.25; No. 2 Foundry, $15.25 to $15.75; No. 1 Soft, $15.25 to $15.50; No. 2, $15 to $15.25, and Gray Forge, $14.50 to $15.

Cast Iron Pipe.—To-day payments are to be made to the constituent companies of the U. S. Pipe & Foundry Company and the officers are to be chosen. As yet no opportunities have presented themselves to test the attitude of the consolidation of the outside interests in the matter of competition for business, nor will the Brooklyn order for about 3000 tons, to be let to-morrow, throw any light on the situation, because the contractors will do the bidding. There is a very good run of small orders for the smaller sizes and the market is advancing, quotations for tidewater delivery ranging from $22.50 to $24, according to size of Pipe and delivery.

Steel Rails.—The Eastern mills report very little business, and are well sold up far into the summer. In the absence of sales of large lots, we quote small parcels at $26 to $28 for standard section at Eastern mill.

Track Fastenings.—A movement is on foot to consolidate the Bolt and Nut manufacturers of the country. We quote Angle Bars, 1.35c. to 1.40c.; Spikes, 1.70c. to 1.75c., and Bolts and Nuts, 2.10c. to 2.20c.

Finished Iron and Steel.—Prices have been advancing rapidly, and in Plates for early delivery it is a question of ability to deliver rather than a question of price. The Hoop and Cotton Tie manufacturers are working on a plan for consolidation. In Structural Material some good jobs are being figured on. We quote as follows: Beams, 1.55c. to 1.65c.; Angles, 1.45c. to 1.50c.; Universal Mill Plates, 2c. to 2.15c.; Tees, 1.55c. to 1.60c.; Channels, 1.55c. to 1.60c.; Steel Plates are 2c. to 2.10c. for Tank, 2.05c. to 2.15c. for Shell, 2.30c. to 2.35c. for Flange, 2.40c. to 2.45c. for Fire Box and 2.45c. to 2.50c. for Locomotive Fire Box, on dock.

Refined Bars are 1.40c. to 1.50c. and Common Bars are 1.25c. to 1.35c., on dock. Soft Steel Bars, 1.50c. to 1.55c.; Steel Axles, 2.50c. to 2.75c.; Scrap Axles, 1.75c. to 1.90c.; Links and Pins, 1.65c. to 1.70c.; Hoops, 1.45c. to 1.50c.; Best Iron Boiler Rivets, 2.25c. to 2.50c. delivered; Steel Structural Rivets, 1.85c. to 1.90c.; Cotton Ties, 65c. to 75c. per bundle, at mill.

The Park Steel Company, Black Diamond Steel Works of Pittsburgh, Pa., U. S. A., have appointed Chas. Churchill & Co., Limited, of 9 Leonard street, Finsbury, London, E.C., as their agents for the sale of their various brands of Steel in Great Britain. A stock of their Steel of some 200 tons is distributed at the various warehouses of Chas. Churchill & Co., Limited—namely, London, Birmingham, Manchester and Glasgow, where full information may be had. This Steel has already found considerable market in Great Britain.

Metal Market.

Office of *The Iron Age*, 232-238 William street, New York, March 22, 1899.

Pig Tin—A very quiet market marked the week under review. Transactions were small and not at all numerous. No interest was shown throughout the entire week. Prices varied but little and closed to-day with 23.65c. to 23.85c. quoted for spot and nearby. London quotations ranged between £108 10s. and £107 5s. The closing quotations to-day were £107 17s. 6d. for spot and £108 7s. 6d. for three months' futures.

Copper.—The market here was extremely dull throughout the week and on the whole prices went off a little. Prices were entirely nominal, however, with quotations at the close to-day averaging about 17c. to 17¼c. for Lake Superior Ingot. Electrolytic Cakes, Wire, Bars and Ingots were quoted at 16¾c. to 17c., and Casting Copper 16⅝c. to 16⅞c. London shows a steady decline amounting to fully £2 since last week. Closing cables today come at £66 15s. for spot and £66 17s. 6d. for three months' futures. Best Selected was quoted £72. With these quotations export business is practically out of the question. There has been, in fact, scarcely any exportation for some time. This is best attested by the fact that £72, the price of Best Selected, represents about 15¼c. per pound in our money. The exports, which are now being recorded from month to month, represent entirely business which was transacted some time ago on very old contracts. These exports amount to about 7099 tons thus far this month.

Pig Lead—Is very dull and closed to-day barely steady at 4.45c. for spot and 4.40c. to 4.42½c. for March and April. The business transacted during the week amounted to very little. St. Louis is dull at 4.25c. to 4.27½c., according to quality. London has advanced to £14 7s. 6d. for spot Soft Spanish. The advance amounts to 5 shillings.

Spelter—Is firm at 6.30c. to 6.35c. The business which has gone through at these figures amounts to but very little.

St. Louis telegraphs a firm market at 6c., and London quotes an advance of 7 shillings 6 pence, with £27 10s. as the figure. The Ore market is unchanged from last week. Best grades are still quoted $43.

Antimony—Is firm and unchanged. Hallett's quotation is 10c., and Cookson's is firm at 10c. to 10¼c.

Nickel—Prices are firm at 38c. to 40c., according to quantity and delivery. Small lots constitute about the only business going through at the moment.

Tin Plates.—Quotations are being furnished by the American Tin Plate Company for delivery later than July 1 of this year. We understand from good authority that these range from 4.05c. to 4.10c. per box on the 100-pound basis. Numerous reports are being persistently circulated to the effect that large quantities of Plates have been purchased in Europe for consumption in this country. If this is true, the Plates can, of course, be used only along the seaport cities, as prices have not been sufficiently high to warrant importation and shipment into the interior. It is also stated that a considerable quantity of European Tin Plates has been purchased by canners, &c., in this country, to be reshipped to Europe in the manufactured article. These importations derive the benefit of the drawback clause. Jobbers have also had a good many boxes which were purchased prior to the formation of the new company at low figures. These, we understand, are pretty well distributed now, however.

John Stanton reports the Copper production in the United States and of the foreign reporting mines and United States exports as follows, in gross tons of 2240 pounds:

	Reporting mines.	Outside sources.	Total U.S. product.	Product foreign mines.	U. S. exports.
First half 1895 ..	70,612	9,100	79,712	42,484	34,215
Second half 1895..	84,885	6,600	91,485	43,674	30,507
Total 1895.....	155,497	15,700	171,197	86,178	64,722
First half 1896 ...	94,180	7,200	101,380	42,255	58,216
Second half 1896..	95,314	7,200	102,514	43,941	67,287
Total 1896.....	199,494	14,400	203,894	86,196	125,503
First half 1897 ...	103,651	5,000	108,651	44,263	64,870
Second half 1897..	100,555	6,900	107,455	44,007	64,340
Total 1897.....	204,206	11,900	216,106	88,270	129,210
First half 1898	112,687	7,800	120,487	40,880	68,284
Second half 1898..	103,535	10,250	113,785	43,674	76,831
Total 1898.....	216,222	18,050	234,272	84,554	145,115
January, 1899.....	16,774	1,850	18,624	5,852	9,204
February, 1899....	17,899	2,000	19,899	7,399	8,391

PERSONAL.

J. P. Miller has returned to Pittsburgh after a stay of nearly one year in Russia, where he superintended the erection of a blast furnace by the Nicopol-Mariopol Mining and Metallurgical Company, about 800 miles from St. Petersburg.

C. E. McKillips, chief clerk at the Homestead Steel Works, has gone to Europe.

Sir John Jones Jenkins, M.P., has been elected president of the British Iron Trade Association for the next two years, in succession to Alfred Baldwin, M.P. Sir John Jenkins has long been one of the leading men in the tin plate trade and is otherwise identified with the industrial interests of South Wales.

P. A. Gough, who for a number of years has been in charge of the cold metal department at the Edgar Thomson works of the Carnegie Steel Company, Limited, has resigned to accept the position of assistant superintendent of the Conneaut Dock Company, to take effect April 1.

A. J. Moxham, who built the works of the Johnson Company at Johnstown and Lorain, has sailed for Europe, to start on a long projected yachting tour around the world.

E. A. Uehling of Pittsburgh has returned from Europe, where he placed his pig iron casting machine with the Alpine Montan Industrie Gesellschaft and with the Prager Eisen Industrie. In Germany casting machines are being built by the Roechlings, who are erecting a plant of six new blast furnaces, and by the Rothe Erde Company at Esch.

George S. Field has been appointed the representative in this country of the Exploration Company, Limited.

Alfred M. White, an iron merchant of Sheffield, England, has sailed for this country, to arrange for the representation in England of American iron, steel and machinery firms.

Three German officials and mining engineers, Bergassessor G. Ernst of Sigen, Bergassessor Heckel of St. Johann and H. W. Ziervogel of Halle, are visiting this country to study its mineral resources and its metallurgical methods.

Gen. Russell Hastings of Massachusetts was elected on Monday by the Executive Committee of the International Union of American Republics as permanent director of the Bureau of American Republics, to succeed Frederick Emory upon his retirement on April 1 next. General Hastings has been for years interested in matters of trade with South America and the West Indies.

Chas. M. Schwab, president of the Carnegie Steel Company, Limited, Pittsburgh, Pa., has returned to Pittsburgh from Europe.

John W. Daugherty, superintendent of furnaces of the Pennsylvania Steel Company, at Steelton, Pa., has been appointed assistant superintendent of the works.

A. C. Rice, the well-known consulting and hydraulic engineer, of Dayton, Ohio, has resigned his position as general superintendent of the Stilwell-Bierce & Smith-Vaile Company in order to devote his entire time to his professional work. Mr. Rice has been prominently identified with the largest water power developments of the past few years, and at the present time is very busily engaged on plans for several large pulp and paper mills and power developments. Among the largest is one of 80,000 horse-power, at Grand Falls, N. B., for a wealthy syndicate of American and Canadian capitalists.

Charles Hansel of New York has tendered his resignation as manager of the department of sales and installation of the Union Switch & Signal Company.

QUOTATIONS OF IRON STOCKS DURING THE WEEK ENDING MARCH 22, 1899.

	Sales.	Thursday.	Friday.	Saturday.	Monday.	Tuesday.	Wednesday.
Am. S. & W., Common,	170,863	62½-63¼	60 -62⅝	59 -60⅛	60⅝-62	60¾-62⅝	62⅛-64⅛
Am. S. & W., Pref.	28,320	102⅛-104	100⅜-102¾	101 -102⅛	101⅛-102¾	101¾-102⅞	102¼-103¼
Col. Fuel and Iron	17,880	34⅜-35⅝	34⅜-37	36 -36⅝	36 -37	35¼-36¼	35⅛-36
Federal Steel, Common	48,356	51⅛-52⅛	51⅜-52¾	51⅝-52¼	52⅛-53⅛	51⅜-52⅜	52 -53¼
Federal Steel, Prefer.	34,820	86 -87¼	87 -87⅛	87 -87⅛	87⅛-88	86¾-87⅛	87¼-88
Tennessee Coal and Iron	150,695	46⅝-48⅝	48⅛-50⅝	49⅞-51	51¼-53⅛	51⅛-54	51⅝-53
Cambria Iron, Phila*	685	46 -46⅛	-46⅛	-46¼	-46⅜	-46⅛	-46⅛
Cambria, Scrip**							
Cambria, Steel***	43,483	23 -23¼	23¼-23⅞	23¼-23⅛	23¼-23⅝	23¼-23⅞	24⅛-24⅛
Penna. Common, Phila.	2,183	46 -46⅛	-46	-46	-46	47 -49⅜	49 -50⅛
Penna. Prefer., Phila.	148					-65	68 -69
Tin Plate Common, New York.	18,580	42¾-43⅝	42¾-43⅝	41½-42⅝	41⅛-42¼	41 -41⅞	41 -41⅝
Tin Plate Preferred, New York.	1,152	-96⅜	-96⅝		95⅛-95⅝	-95⅛	95¼-95½
Tin Plate Com., Chic.	12,510	42¾-43¼	42¼-43¼	41⅝-42¼	41¼-42	40⅞-41⅛	40⅞-41⅝
Tin Plate Prefer., Chic.	2,048	96 -96⅛	95½-96¾	95⅝-96	95¼-	94⅜-96	95 -95¾
National Steel Common, Chic	63,207	38¼-40¼	40¼-41	40⅛-41	40¾-41⅜	41⅛-42⅛	42⅜-44⅜
National Steel Preferred, Chic.	17,281	88 -88⅞	88 -89	88⅛-89	89 -90	89⅛-90	89⅜-90

* Par $50. ** Par $100. *** $1.50 per share paid in. Late Philadelphia and Chicago sales by telegraph.

The American Ship Building Company.

It is stated on good authority that the object of the American Ship Building Company, who were incorporated in New Jersey last week, are to control both the ship building and the shipping interests on the great lakes. The capital stock of the company is $30,000,000, divided into $15,000,000 of 7 per cent. non-cumulative dividend and $15,000,000 of common stock. The companies who will be merged into the new company are the American Steel Barge Company of West Superior, Wis.; the Chicago Ship Building Company, Chicago; Cleveland Ship Building Company, Cleveland; Detroit Dry Dock Company, Detroit; Globe Iron Works Company, Cleveland; Union Dry Dock Company, Buffalo, and the Ship Owners' Dry Dock Company of Cleveland. This leaves as the only steel ship building concerns of size who are not included in the combination the Davidson Yards of Bay City, Mich.; the Jenks Ship Building Company of Port Huron, Mich., and the Craig Ship Building Company of Toledo. The latter concern, it is said, have made satisfactory provision with the company whereby harmonious co-operation will be possible. It is stated that $7,500,000 of preferred and an equal amount of common stock is to be used in the acquisition of the various plants, and that the balance will be used for purchasing certain leading steamship lines on the lakes. The company will conduct a general transportation business, as well as ship building. The company will begin business with $3,000,000 capital. The company's charter provides the powers of building and equipment of ships, vessels, wharves and docks, and the transportation of goods and passengers, also manufacturing and mining of all kinds. The incorporators are James B. Dill, Fred. W. Klein and W. T. Coleman. This is considered a dummy board, however, elected simply for the purpose of organization and concealing the identity of the real directors. We understand, however, that the actual directors will consist entirely of representatives of the various companies who will comprise the new company, and that no outside capital will be employed to any controlling extent. It is also stated here that the plants will not be purchased outright for cash, but will continue under their present managements. The object of the corporation is said to be mainly to enable the various plants to secure their materials on a more advantageous basis, and reduce certain operating expenses.

A movement is on foot to organize the Bethlehem Steel Company, the plan being to guarantee a certain rate of dividend annually to the stockholders of the Bethlehem Iron Company of South Bethlehem, Pa.

It is officially denied that the Westinghouse Air Brake Company and the New York Brake Company had effected an agreement and would work together.

The treaty of peace between the United States and Spain, after having been ratified by the Spanish Cortes, was signed by the Queen Regent on March 17. M. Cambon, the French Ambassador at Washington, has been appointed to exchange the ratification on behalf of Spain.

At a meeting held this week in Pittsburgh a company were organized to make steel barges for the Ohio River trade. One of the local barge companies are said to be interested in the enterprise. The company will be capitalized at $1,000,000.

Iron and Industrial Stocks.

During the earlier part of the week under review a number of the iron stocks suffered some reaction, but they have quite generally recovered. This is particularly true of American Steel Wire issues. Tennessee has gained very considerably during the week. A large business has been done in Cambria Steel at an advance, and to-day there were larger sales of Pennsylvania Steel at higher prices. Tin Plate has receded during the week, while National Steel common has gained. During the last few days the directors of a small trust company and several smaller banks passed resolutions excluding industrials from collateral.

The closing quotations on a number of industrial shares were as follows:

International Silver, Common	.. to ..
International Silver, 5s	.. to ..
Mich.-Peninsular Car, Common	43
Mich.-Peninsular Car, Preferred	94
Mich.-Peninsular Car, First 5s	100
Otis Elevator, Common	36¼
Otis Elevator, Preferred	89
H. R. Worthington, Common	50
H. R. Worthington, Preferred	117½
Cramp's Shipyard Stock	76
Pratt & Whitney, Common	3
Pratt & Whitney, Preferred	40
E. W. Bliss, Common	138
E. W. Bliss, Preferred	125
U. S. Projectile	90
Barney & Smith Car, Common	23
Barney & Smith Car, Preferred	.. to ..
Pressed Steel, Common	59
Pressed Steel, Preferred	87½

A dividend of $1.75 per share on the preferred stock of National Tube Works Company will be paid April 1. A dividend of $1.75 per share on the common stock will be paid May 15.

Rolling Rails and Shapes at Youngstown.—At the Youngstown works of the National Steel Company, Youngstown, Ohio, the necessary equipment for the rolling of steel rails is being installed, and it is expected that rails will be turned out before July 1. It is also intimated that structural shapes will be rolled at these works.

The plant of the Glamorgan Pipe & Foundry Company, Lynchburg, W. Va., has been sold, it is reported, to a New York syndicate, headed by M. J. Drummond, for $262,500.

The home seekers' half fare rate on the transcontinental railroads went into effect on March 21, and the Northern Pacific and Great Northern lines were compelled to double their facilities in order to handle the crowd. No fewer than 5000 people took advantage of the low rates, and, as most of them bought only one-way tickets, it is assumed that they intend to locate permanently in the West.

It is reported that New York and Philadelphia capitalists have leased 1000 acres of coal land in South Huntington Township, Westmoreland County, Pa., and will erect coke ovens.

The Otis Steel Company of Cleveland will advance the wages of their employees on May 1.

The New York Machinery Market.

Office of *The Iron Age*, 232-238 William street, New York, March 22, 1899.

Thus far orders have not been quite as numerous as they were during the preceding month. It is an old precedent, however, that the machinery business goes through in fits and starts. Consequently the fact that inquiry may have fallen off just a little is not by any means looked upon with alarm. One Liberty street merchant put it: "It just gives us a chance to pull ourselves together and see where we're at preparatory to the next rush." The shops are still filled with work and will be for several months to come. The heavy tool builders are booked further ahead than the makers of smaller tools. The number of concerns who are advancing prices increases with each week. We have just heard of several New England firms who have withdrawn discounts. The Western builders have already advanced with the market. The position is still just as strong in the builders' favor as ever. The question of deliveries is becoming more and more complicated. Stocks are almost wiped out entirely and now consist mainly of odds and ends. These are being purchased in preference to waiting for the expiration of the time fixed by the builders for the delivery of standard sizes.

Among the most fortunate men in the trade can be counted those representatives who own a large or small storehouse somewhere well stocked with second-hand tools. The second-hand tool business now is excellent. Lots of old machinery that has been knocking about the storehouses for months and months is now being put in shape and purchased eagerly. Some dealers have been fortunate enough lately to buy up entire equipments of some of the bicycle and other factories which have been forced to the wall recently. Such material is considered choice.

Schuchardt & Schutte, the large machinery merchants of Continental Europe, have opened a suite of offices in this city. They are in the Beard Building, 120 Liberty street. Max Daunert, who was formerly in charge of the American department of the company's business at Berlin, is now the American representative, and is in charge of the New York offices. The objects of establishing the office are to bring the company in closer touch with American manufacturers and to transact the shipping, forwarding, &c., of the American machinery which the company may purchase. To show that the latter feature will be an important one it might be well to note the fact that on one steamer last week 500,000 pounds of machinery which was built in this country was shipped to Schuchardt & Schutte. One very important mission which Mr. Daunert intends to fulfill with the New York office is that of forming new connections with American manufacturers. On this subject Mr. Daunert said: "We expect to be on the lookout for anything new in the machinery line which may be of merit and worth pushing in the various European countries. We understand the wants of the people there, and many good articles are made in this country which are not properly handled on the other side. We have found that not infrequently representatives of very small European houses chanced to come across excellent devices and machines while visiting this country, and after securing the European agencies they were unable to push the article as it merited and deserved. Whenever a good device or new machine is brought to our notice I shall take the matter up with our people and endeavor to have it properly represented in Europe." Schuchardt & Schutte have recently opened an additional branch establishment at Stockholm, Sweden. With the main establishment in Berlin these latest acquired agencies give the concern representation in Cologne, Vienna, Brussels, Stockholm and New York. The company also have a number of men traveling through Russia.

W. Mackintosh, formerly of the Chicago & Northwestern Railroad, has been appointed master mechanic of the Central Railroad of New Jersey. It is generally believed that now the projected machine shops will actually become an issue. The proposed shops, it has been said, will be situated directly opposite the Singer works in Elizabethport, N. J. According to the plans as they have been previously formulated, the system of shops will be a monster affair, and will necessitate a very large equipment of working tools. The affair has been hung up several times since its conception.

The Machinenfabrik Grevenbroich, a large German firm manufacturing beet sugar machinery, have sold through their New York office, at 11 Broadway, equipments for two beet sugar factories in this country. They are the Illinois Sugar Refining Company of Pekin, Ill., and the West Bay City Beet Sugar Factory of Bay City, Mich. There are about ten new beet sugar plants in course of construction throughout Michigan, Illinois, Colorado and Nebraska. These plants, it is expected, will be ready for operation on this year's crop. Many other factories are being projected now for next year. This line is especially active now.

The W. H. Compton Shear Company of Newark, N. J., are equipping a plant which will be operated in opposition to the shear combine, or National Shear Company. A portion of the machinery has been purchased, principally from the Garvin Machine Company, E. W. Bliss Company, Waterbury Farrel Foundry & Machine Company, and the E. S. Stiles Press Company. The equipment has not all been purchased.

The contract for the heating and ventilating apparatus for the Milton (Vermont) plant of the International Paper Company was awarded to the American Blower Company of Detroit, Mich., and 141 Broadway, New York. This concern will also furnish the apparatus for heating and ventilating the Kings County Hospital. The contracting engineers on this job are Williams & Manogue of Troy, N. Y.

The Degnon McLane Construction Company of 1 Broadway have awarded the contract for another dredging plant to James H. Lancaster of 95 Liberty street. This plant, which will have a capacity of 700 yards per day, is to be used in digging the canal for the Norfolk, Va., Water Works.

The Chihuahua & Pacific Railroad Company have placed through their New York office, 80 Broadway, an order for a large hoisting engine with J. S. Mundy of Newark, N. J.

It is stated on the street that a new plant will be constructed by the Maryland Steel Company, at Sparrow's Point, Md., for the construction of the $850,000 floating dry dock which the Government awarded to this company. The dry dock is for the naval reservation at Algiers, La. The time for submitting bids for the New York cast iron pipe, hydrants, valves, &c., expires tomorrow, March 23, at 2 oclock, p. m.

Steam pump builders are preparing bids for two pumping engines for the Roxborough Station, Philadelphia, and also for pump chambers and valves for the engines at the Spring Garden station. Proposals will be received until noon on Tuesday, April 11. Plans, specifications, blank forms of proposals and all information can be secured at office of Chief, Bureau of Water, Room 790, City Hall, Philadelphia.

We are informed that Manning, Maxwell & Moore have opened a branch office at Cleveland. It is in the charge of Frank B. Ward.

The Buffalo Forge Company have removed their New York offices from the Havemeyer Building, 26 Cortlandt street, to the Monroe Taylor Buliding, 39 and 41 Cortlandt street. The new offices are on the ninth floor, rooms 114 and 115.

The James H. Lancaster Company (Incorp.) have removed their offices from 123 Liberty street to the White Building, 95 Liberty street, ninth floor.

The Philadelphia Machinery Market.

Office of *The Iron Age*, Forrest Building, Philadelphia, Pa., March 20, 1899.

The feature of the market to-day exciting most comment is perhaps the upward tendency of prices. While this movement is more pronounced in the line of machine tools, other lines are gathering strength, and higher prices are being asked. In all directions prices are firmer and the disposition everywhere seems to be to turn down all transactions not promising a good margin of profit. This condition is no more than might have been expected. For some time the shops of the larger machine tool builders have been overflowing with business, and smaller shops within convenient distances have been called upon to relieve the pressure. Owners of small shops having anything like a useful equipment have no trouble in getting plenty of work from the large builders, and the assistance thus accruing makes the situation clearer. The tide of business has not changed in the least during the past four weeks, and orders are pouring in as fast as ever. This state of things, with the advances in the prices of raw materials, has necessarily resulted in higher prices in many directions.

There appears to be no general scarcity of small machine tools, and orders are being filled with reasonable promptitude. The case is very different, however, as regards the fulfilment of orders for large tools, deliveries running all the way from three and four months to eighteen months. Engines and general power equipments are in fairly prompt supply, although builders' works are for the most part running on double turn.

The crane manufacturers are loaded up with work sufficient to last many months. In their deliveries they are somewhat hampered by the inability of the mills to furnish structural material promptly.

The activity at the different shipyards continues unabated. The Cramps during the month have secured contracts for three passenger and freight steamers, each of about 7,000 tons displacement, for the Oceanic Steam-

ship Company, to run between San Francisco and Honolulu. The Neafie & Levy Ship & Engine Building Company have secured a contract for a 16-knot freight and passenger steamer, 260 feet long, 3,000 horse-power engines, for the Bay Line, running between Baltimore and Norfolk.

One or two operations requiring a good deal of machinery are reported. It is said that the capitalists who have taken over the Darby Gas Works, near this city, propose building a $150,000 plant and will put in service pipes to supply Lansdowne, Aldan, Clifton Heights, Colwyn and Yeadon.

A $3,000,000 hotel, built and equipped after the style of the New York Waldorf-Astoria, is also among the probabilities for Philadelphia. The hotel is to be erected on the site of the present Hotel Stratford, South Broad street, and it is said operations are to be commenced immediately. Considerable in the way of machinery will be required for this building.

Bids are being called for by Thomas M. Thompson, Director, Bureau of Water, Department of Public Works, for two pumping engines for the Roxborough station; and for pump chambers and valves for Engines Nos. 2 and 3 at the Spring Garden station. Bids will be received until 12 o'clock, Tuesday, April 11.

The Fisher Foundry & Machine Company, Pittsburgh, Pa., and Moran Bros. & Co., Seattle, Wash., have been in the market for cranes, the former for a 20-ton and the latter for two 15-ton. It is not learned that the orders were placed with any of the makers.

Allen B. Rorke of this city has been awarded the contract for the buildings to be erected for the exposition to be held in Philadelphia next fall, and work will be commenced on them at once. Details in regard to the exposition are not yet forthcoming.

The Chas. Scott Spring Company, makers of machinery springs, had their plant destroyed by fire on the 13th inst., but their business will not be interfered with to any extent, as they have already made arrangements for the prompt fulfilment of orders in hand and others to come in.

Bement, Miles & Co., continue exceedingly busy at their works. Every foot of working space is taken advantage of and everything possible done to expedite deliveries. The same condition is apparent at the works of Wm. Sellers & Co., Incorporated, the amount of business in hand being exceedingly large.

Lucas & Gliem, builders of machine tools, cold saws, grinders, &c., report plenty of business at their works. Orders just secured include one from the Pencoyd Works for a saw grinder, the second order received within a few weeks. They have also taken an order from the Kutztown Foundry & Machine Works for a large drill for special work.

Edwin Harrington, Son & Co., are quite busy at their works on lathes and other machine tools. Some of the orders recently secured are quite large. So far they have been able to make reasonably prompt deliveries.

J. W. Creager has met an unusually large demand for the machine tools of the different makers he represents in this market. One order recently received covered an equipment for the repair shop of a large textile manufacturing establishment in the City of Mexico.

The Southwark Foundry & Machine Company are very busy, and running double turn at their works. They have just taken a very large order from Carnegies for engines, and have enough orders in hand to keep them busy for some time.

The Philadelphia Engineering Works report business brisk with them, necessitating running double turn. Among the orders recently taken they mention one from Mathieson & Co., Philadelphia, for a 12 x 30 Corliss engine, and another from Evans, Almiral & Co., Norwich, Conn., for a similar engine. They have the order for the large chimney, 10 feet diameter, 250 feet high, for Jacob Ruppert & Co.'s 1000-ton capacity ice plant, New York. They are also building a 7½-foot chimney, 150 feet high, for the Brooklyn Navy Yard, and have just shipped a 7-foot chimney, 150 feet high, for the General Electric Company, Houston, Texas. They are also doing a lot of work in the way of remodeling old blast furnaces, for the Dayton Coal & Iron Company, Dayton, Tenn.; Poughkeepsie Iron Company, Reading Iron Company, Eckert & Co., Reading, Pa.; Ætna Iron & Steel Company, Mingo Junction, Ohio, and the Hamilton Iron & Steel Company, Hamilton, Ont.

The Harrison Safety Boiler Works are meeting a great demand for their Cochrane feed water heaters and separators, and are about increasing their equipment to enable them to keep up with their orders. Orders for heaters received within the past three weeks include: Jos. Linz & Bro., Dallas, Texas, 150 horse-power; McMahon Cracker & Biscuit Company, Chicago, 100 horse-power; Vindicator Con. Gold Mining Company, Independence, Col., 300 horse-power; Pressed Steel Car Company, Pittsburgh, 5250 horse-power; American Blower Company, London, England, 100 horse-power, Loveman, Joseph & Loeb, Birmingham, Ala., 300 horse-power; Little Rock Traction & Electric Company, Little Rock, Ark., 1250 horse-power; Jones & Laughlin, Pittsburgh, 4000 horse-power; Union Iron Works, Buffalo, N. Y., 2000 horse-power; Delaware & Hudson Canal Company, Leggett's Creek Breaker, 1500 horse-power; the same, for Delaware, Shaft, 1500 horse-power; Fond Du Lac Electric Light & Power Company, 500 horse-power; Dillon & Griswold Wire Company, Sterling, Ill., 1000 horse-power; Hygeia Ice & Cold Storage Company, Philadelphia, 200 horse-power, and Elgin National Watch Company, Elgin, Ill., 450 horse-power. Separator orders include: Verlenden Bros., Darby, Pa., 1 7-inch; De La Vergne Refining Machine Company, New York, 1 each 5 and 4 inch; Carnegie Steel Company, Duquesne Furnaces, 2 14-inch; Armstrong Water Company, Kittanning, Pa., 1 5-inch; Western Newspaper Union, 1 4½-inch; Dillon Griswold Wire Company, Sterling, Ill., 1 8-inch; Philadelphia Grain Elevator Company, 1 10-inch; Aberfoyle Mfg. Company, Chester, Pa., 1 8-inch; St. Joseph Railway Light, Heat & Power Company, St. Joseph, Mo., 2 7-inch, and Cooper & Cole Bros., Lincoln, Neb, 1 5-inch.

Joseph D. Ellis is about to erect a two-story brick factory, 65 x 305 feet, to be used by Becker, Page & Smith as a wall paper manufactory. The machinery equipment will be up to date in every respect. It is not learned that orders for the equipment have yet been placed.

Israel H. Johnson, Jr., & Co., builders of lathes, continue very busy, but are keeping up pretty well with promised deliveries. Their works are being run to their fullest extent, although not on double turn, the nature of the work not permitting of the employment of two gangs of men with satisfactory results.

The Wilbraham-Baker Blower Company, makers of pressure blowers and exhausters, are very busy. They have received a nice lot of orders during the past three weeks, including some from abroad.

At the Baldwin Locomotive Works orders are still piling up. Orders received during the month include a third order from the Midland Railway Company of England for ten locomotives, making 30 in all to be built for that road, and an order for several locomotives for the Government railway of France. Domestic orders have been very plentiful, although individual orders have not been large in size. The property of the Bush Hill Iron Works, recently acquired by the concern, is being used for storage purposes. No alterations or extensions to this property are contemplated for the present.

Wm. H. Wood, Media, has quite a lot of business in hand. Recent shipments made by him include five cars of hydraulic riveters to Honolulu.

The Boiler Manufacturers.

(By Telegraph.)

PITTSBURGH, March 22, 1899.—A largely attended meeting of boiler manufacturers was held in Newell's Hotel on Tuesday, March 21, and the meeting was also in session on Wednesday. James Lappan of Pittsburgh was president. It is understood that matters of considerable interest to the boiler trade are under discussion, and it is not improbable a consolidation or something of that kind may be attempted. Some 25 concerns or more engaged in the boiler trade are represented.

An Engine Order for Russia.

(By Telegraph.)

PITTSBURGH, March 22, 1899.—Julian Kennedy, consulting engineer, Vandegrift Building, Pittsburgh, has placed an order with Macintosh, Hemphill & Co., engine builders, of this city for two engines to be shipped to the Mariopol Nicopol Mining & Metallurgical Company, at Mariopol, Russia. These engines will be used to drive a slabbing mill that was designed and built by Julian Kennedy for the above concern in Russia. One of the engines now being built has two cylinders, each 46 inches in diameter with 60-inch stroke, and weighs about 800,000 pounds. The other is a smaller engine, with cylinders 26 inches in diameter and having a 30-inch stroke. The smaller engine will weigh about 200,000 pounds. They are expected to be completed in about four months. Some skilled mechanics will be sent to Russia with the engines to erect them.

The employees at the Bellaire furnaces of the National Steel Company, at Bellaire, Ohio, have received a voluntary advance in wages.

The Wheeling Steel & Iron Company, Wheeling, W. Va., have granted all their employees an advance in wages, varying from 10 to 15 per cent.

HARDWARE.

Condition of Trade.

THERE is little change in the general features of the market. A strong tone pervades many lines, especialy those in which there have been marked advances, such as Wire products and heavy goods generally. In these lines advances are announced from time to time on goods which had not previously kept pace with the upward movement of the market. In general Shelf Hardware many kinds of goods remain without change in price, but in practically all such cases there is a firmer tone, and manufacturers are calling in extras, considering the feasibility of advances and looking out that they are covered on the raw material in sufficient quantities to meet their requirements for some time to come. The question as to the extent to which recent advances will be permanently sustained is being canvassed by the trade, and many manufacturers are restrained from making advances, which might for the time being be maintained, by the apprehension that there may possibly be before long a return to something like the former range of prices. Notwithstanding the fact that the tone of the market continues exceedingly confident and little doubt is anywhere expressed that the season's business will be large and at good, perhaps high, prices, it is evident that there is something of a lull in purchasing on the part of the Hardware trade. This doubtless results from the fact that the jobbers have placed their orders for such goods as they will require during the next few months and are giving their attention to marketing their stock, and thus realizing a profit which is only prospective until the goods are sold and paid for. Prices made by the jobbing trade are higher than they have been in nearly all cases in which the manufacturers' prices have been materially advanced, but very frequently the jobbers' advances have not kept pace with those of the manufacturers and there is a good deal of cutting in the sense that goods can be obtained by retail merchants at lower prices from the jobbers than from the manufacturers. This is a matter which does not greatly concern the manufacturers, who are generally filled up with orders at old prices and do not expect to market many goods as yet at the new quotations. The demand from the retail trade continues large and probably growing, and in several lines it is probable that a shortage will be developed and that merchants who have not covered their requirements may be put to some inconvenience on account of not being able to obtain the goods.

Chicago.

(By Telegraph.)

All Shelf Hardware jobbers report a continued heavy movement in all classes of goods. Some state that never in any month in any year have they done so large a business as they are doing at present. The advances made have not yet checked the demand. Dealers in Roofing Supplies and Tinners' Stock report their volmue of business about the same as in previous years with respect to the quantity of goods handled, but of course running far ahead of recent years in values. Quite a number of advances have been made during the week. Pieced and Stamped Tinware and Galvanized and Japanned Ware have been marked up 10 per cent. Wire Cloth is quoted at $1.10 to $1.25 from jobbers' stock, with a very strong probability that the lower quotation will soon be withdrawn. Manufacturers of Screen Doors and Window Screens have withdrawn old quotations and have materially advanced their prices. Trace Chains, Well Chains, Cable Chains and Cow Ties have made a second advance of 10 cents; Spring Hinges are also up 10 per cent. Enameled and Cast Hollow Ware are 10 per cent. higher. Disston Hand, Rip and Cross Cut Saws have been marked up 2½ to 5 per cent. Auger Bits and Augers are 30 per cent. higher. Quite a number of advances have been made on less important articles and no reductions have been made in any direction whatever. An erroneous report was circulated this week that another advance had been made in Wire Nails and Wire. The Heavy Hardware jobbers also report a large business, with a particularly strong demand for Iron and Steel coming from manufacturers who are unable to get sufficiently prompt deliveries from the mills. Collections are reported to be exceedingly satisfactory.

St. Louis

(By Telegraph)

Reports from retail merchants show that the few bright workable days in this vicinity created a large run of business. The jobbers have in the past shown the greatest activity and that retailers now have their stock set moving is clearly due to consumers' purchases. It has undoubtedly been felt by some that the heavy sales by jobbers are mainly speculative, but the foresight of retailers who purchased is now apparent. The volume of trade flowing through jobbers' hands continues excellent. All lines feel the movement. Wagon Material is being freely dealt in and will show an increasing demand with the hardening up of highways.

Omaha.

LEE-GLASS-ANDREESEN HARDWARE COMPANY. — The first half of March has witnessed an active movement of goods in practically all departments. Notwithstanding a series of storms and rough weather, accompanied by a low thermometer, trade as a whole has been remarkably satisfactory. Every line of business appears to be in a flourishing condition, with the country demand of such liberal proportions as to keep every one fully occupied.

The numerous advances in prices that have recently occurred are well maintained—in fact, they seem to act as a stimulation to trade, buyers placing orders fearlessly, in the expectation of a still higher range of values.

All that appears necessary now is the advent of spring like weather, with conditions favorable for the commencement of farm and other outdoor work.

Notes on Prices.

Wire Nails.—There has been no further change in Wire Nails and the market is represented by the following quotations, f.o.b. Pittsburgh or Cleveland:

To jobbers in carload lots	$2.00
To jobbers in less than carload lots	2.02½
To retailers in carload lots	2.05
To retailers in less than carload lots	2.15

The mills generally are occupied on orders taken before the last advance. Notwithstanding the high prices now current it is reported that a good volume of business is being done, some of the trade finding it necessary and deeming it safe to purchase at present prices. In many

cases merchants are able to obtain Nails from second parties at lower prices.

New York.—Nail merchants and manufacturers represented in New York report an excellent local demand and in some cases difficulty is found in obtaining Nails at all promptly. Prices based on manufacturers' present quotations are as follows: Carload lots on dock, New York, $2.15 to $2.20; small lots from store, $2.30 to $2.35.

Chicago, by Telegraph.—An erroneous report had been circulated that prices had been advanced another 15 cents during the week. This is incorrect, as quotations remain where they were before—namely, at $2.15 Joliet and De Kalb for carload lots. Jobbers point out that they can no longer make quotations at mill prices from Chicago, as manufacturers are adding the freight to Chicago to their mill price. Small lots from stock are quoted at $2.25. Manufacturers and jobbers alike report a good volume of business during the week, the higher prices not having checked the demand.

St Louis, by Telegraph.—The buying movement continues and the time is at hand for increased wants of consumers. Makers' carload quotation to jobbers remains at $2.15, St. Louis. Small lots are sold by jobbers at $2.25 to $2.30.

Pittsburgh.—The market has been without special feature since our last report. Advices are that the heavy advances in prices by the American Steel & Wire Company are checking demand to some extent, and in some cases jobbers are selling at prices slightly lower than are quoted by the controlling interest. The volume of business, however, is fairly satisfactory, and demand in the next two or three months promises to be very large. Stocks of Nails in jobbers' hands are said to be heavy. We quote Wire Nails as follows: To jobbers in carload lots, $2; to jobbers in less than carload lots, $2.02½; to small buyers in carload lots, $2.05; to retailers in less than carload lots, $2.15, f.o.b. Pittsburgh or Cleveland.

Cut Nails.—The Cut Nail market is in a peculiar position. There appears to be little if any concert between the manufacturers in regard to prices. The market is thus an open one. Materially higher prices are, however, prevailing, with a good deal of unevenness, some manufacturers holding at as high as $1.75, while $1.60 is probably a representative price, though shaded in some cases. The high prices ruling for Wire Nails are materially increasing the demand for Cut Nails.

New York.—There appears to be little reason for complaint in regard to the volume of business. Orders are coming in freely and a good many Nails are moving, for the most part in comparatively small lots. The New York price for carloads on dock may be given in a general way as $1.70 to $1.75, small lots from store being held at about $1.80.

Chicago, by Telegraph.—Trade in Cut Nails shows some improvement, but the volume of business is still very small as compared with that of Wire Nails. Jobbers quote $1.65 on small lots from stock.

St. Louis, by Telegraph.—The price for small lots from store is $1.65. The demand seems to hold its own and the disparity between prices of Cut and Wire Nails may improve sales of the former.

Pittsburgh.—The Cut Nail market is very firm and prices are advancing. In sympathy with Wire Nails the volume of business is increasing and the outlook for spring trade is encouraging. We quote Cut Nails at $1.50 to $1.60 in carload lots. Our higher figure, however, more accurately represents the market, the lower quotation being made only in exceptional cases and for very desirable orders.

Barb Wire.—The Barb Wire market remains in substantially the same condition as last week. The new prices announced by the manufacturers are strictly maintained by them as follows, f.o.b. Pittsburgh or Cleveland:

To Jobbers in carload lots,		Painted	$2.10
"	"	Galvanized	2.50
To Retailers	"	Painted	2.15
"	"	Galvanized	2.55
"	in less than carload lots,	Painted	2.25
"	" " " "	Galvanized	2.65

Wire can, however, in some cases be obtained from jobbers or other second parties at concessions from the above prices. The demand is good, with a prospect of something of a shortage during the season.

New York.—There continues to be a fair movement of Barb Wire, with a good prospect for future business. The question as to whether the high prices now ruling will have the effect of cutting off the export business is being canvassed by the trade. Carload lots of Four-Point Galvanized on dock are quoted at $2.65 and small lots from store at $2.75. The price of Painted Wire is 40 cents less.

Chicago, by Telegraph.—The demand for all kinds of Wire continues unabated. The country trade are buying Plain and Barb Wire with Wire Nails in their usual proportions. Carload lots of Painted Wire are held at $2.25, Joliet or De Kalb, Galvanized at $2.65 and Smooth Annealed at $2, base. Jobbers quote small lots from stock at 10 cents per 100 above these prices.

St. Louis, by Telegraph.—Every indication points to early outdoor work, and a prompt movement of Barb Wire is looked for. The carload price to jobbers is $2.25 on Painted, f.o.b. St. Louis. On single cars dealers quote $2.30, and $2.40 for smaller lots from stock. The spread on Galvanized is 40 cents per 100 pounds.

Pittsburgh.—There is a heavy demand and buyers are complaining considerably over delayed shipments. The heavy advances in prices made by the American Steel & Wire Company do not seem to have restricted the demand for Barb Wire to any extent. We quote to large buyers in carload lots: Painted, $2.10; Galvanized, $2.50; to small buyers in carload lots, $2.15 for Painted; Galvanized, $2.55; to small buyers in less than carload lots: Painted, $2.25; Galvanized, $2.65, f.o.b. Pittsburgh.

Smooth Wire.—Quotations are unchanged, the market being represented by the quotation of $1.85, base, for the Plain, f.o.b. Pittsburgh or Cleveland, with 40 cents additional for Galvanized. To single carload buyers the price is $1.90, base, for the Plain and $2 in less than carloads, f.o.b. Pittsburgh or Cleveland, an advance of 40 cents being made for the Galvanized.

Pittsburgh.—There is an enormous demand for Smooth Wire, and there promises to be a shortage in supply. The outlook is that the consumption of Annealed Wire this year will be much heavier than in any year in the history of the trade. We quote at $1.85, base, with 40 cents advance for Galvanized. To single carload buyers the price is $1.90, base, and for less than carload lots $2, f.o.b. Pittsburgh or Cleveland.

Chain, Trace, Fancy, &c.—Several advances have been made by the manufacturers of this line of goods, and in view of the active demand it is becoming difficult to obtain goods at all promptly. Some of the manufacturers are also embarrassed by labor troubles, there being a disposition on the part of the workmen to demand higher wages.

Corrugated Roofing.—We have already referred to the advancing tendency of this market, which is still characterized by a firm tone. There is a heavy demand and some delay in executing orders.

Screw Hook and Strap Hinges.—Both Screw Hook and Strap and Screw Hook and Eye Hinges are somewhat higher on account of the advance in the raw material, the former being represented by the quotations 2¼, 2½ and 2¼ cents.

Horse Nails.—The negotiations which have for some time been in progress looking to the adoption of measures to give regularity to the Horse Nail market and secure more satisfactory prices to the manufacturers have not as yet been carried out, and it remains to be seen whether or not it will be found feasible to accomplish the desired end in the way originally contemplated.

Refrigerators.—Refrigerator prices are in most cases made for the following season, and the requirements of merchants are for the most part covered. There is, however, a general advance in nearly all the materials which enter into the construction of a Refrigerator, and this tends to give decided firmness to the tone of the market so

far as the manufacturers' prices are concerned. Some of the manufacturers express the opinion that there will be an advance in prices later in the season.

Dripping Pans.—This is a line directly affected by the increased cost of the material and prices are quotably higher, being represented by the following quotations:

	Cents per pound.
Large sizes	4
Small sizes	4½

Market Wire, Stone Wire, &c.—The few manufacturers of this line are so crowded with orders that it is difficult to obtain quotations, the makers not being disposed to name prices except for what they are in a position readily to supply.

Steel Goods.—There continues to be much diversity in the lists used by the manufacturers and jobbers in connection with the sale of Steel Goods, but the market, on whatever list transactions may be based, is characterized by a firm tone. The advances in price made by the manufacturers have been rendered necessary by the increased cost of the various materials which enter into the goods, but another reason for the advance is the unusually heavy demand. This demand is so active, both from retailers and jobbers, that the opinion is expressed by some well informed parties that a scarcity is likely to be developed. We are advised by the Utica Tool Company, whose price-list on these goods (1895 or old list) we printed in our last issue, that their five and six-tine Manure Forks, Washington brand, should be eliminated from the list, as these goods are made only to a limited extent and especially for export demand, and their Mining or Sluice Forks, eight and ten tine, should be listed at $18 and $23 respectively, the prices on these goods printed in their 1895 catalogue being no longer in effect.

Horseshoes.—The manufacturers of Horseshoes have recently been conferring with reference to an advance in prices and the formation of a strong organization for the control of the market or for the consolidating of interests. One prominent manufacturer, however, has held aloof from this movement, and it has not been feasible to carry out the plans under consideration, but an advance in the price of Shoes has been made by nearly all the manufacturers. Discounts, concessions, rebates of one kind or another have been withdrawn and the base price on Shoes, No. 2 and larger, has been made 3 cents, No. 1 and smaller being ¼ cent more. The revised prices are represented by the following quotations of the Rhode Island Perkins Horse Shoe Company, Providence, R. I., terms cash 30 days or 2 per cent. discount for cash in ten days, subject to freight equalization to all points:

	Cents per pound.
Extra Light, Light, Medium and Heavy Pattern Horseshoes, No. 2 and larger	3
Long Heel Shoes, No. 2 and larger	3
Favorite " " 2 " "	3
Iron Countersunk Shoes, No. 2 and larger	3
Snow, Road or Trotting Shoes, No. 2 and larger	3
X. L. Steel Horseshoes, No. 2 and larger	3⅛
Cow Boy Shoes, No. 2 and larger	4
" " " plain, No. 2 and larger	3⅛
Thin Steel Countersunk Shoes, No. 2 and larger	4
Mule Shoes, No. 1 and larger	3
0 and 00 Mule Shoes	4⅛
Jack Shoes	5⅛

Similar prices apply to Phœnix, Bryden and American Horse and Mule Shoes, other makes being 5 per cent. less. The Rhode Island Perkins Horse Shoe Company also announce the following prices on their specialties, terms 30 days or 2 per cent. discount for cash in ten days, f.o.b. Valley Falls, R. I., no freight allowance being made:

	Cents per pound.
Perkins Light, Medium and Heavy Toe Weight Shoes, No 2 and larger	4⅜
Perkins Extra Light and Light Side Weight Shoes, No. 2 and larger	6⅛
Perkins Calked Shoes, No. 2 and larger	3⅛
" " Mule Shoes, No. 1 and larger	4
Goodenough Army and Heavy Patterns, No. 2 and larger	3¼
" Winter Pattern, No. 2 and larger	3¾

As stated above all Horseshoes No. 1 and smaller are ¼ cent per pound extra.

The Burden Iron Company, Troy, N. Y., have not made any change in their prices.

Nuts.—The market on Nuts is decidedly firm and the successive advances of the manufacturers are being maintained. The volume of business is heavy, and a good many of the factories are considerably behind their orders.

Tacks.—Advances are being made gradually by the Tack manufacturers, and in view of the excellent demand and the general tone of the market prices are decidedly firm. Many of the jobbers have, however, large stocks on hand purchased at considerably lower quotations than are now prevalent with the manufacturers, and as a result in many cases the trade are able to buy from the jobbers at lower prices than the manufacturers are willing to give. In view of the difficulty of obtaining Tack plate and the extent to which the factories are crowded with orders manufacturers are withdrawing quotations and refusing to take orders for future delivery except at prices which may then be current.

Clips.—Axle Clips of all grades feel the effect of the condition of the Iron market, and prices are quotably higher with a good tone, which results from the increased demand for these goods.

Carriage Bolts, Machine Bolts, &c.—The manufacturers find comparatively little difficulty in maintaining the higher prices which are now prevalent, and the market is characterized by a firm and confident tone. A good deal of difficulty is experienced in executing orders promptly, a good many of the factories being considerably behind with their shipments. In this line of goods the jobbers' prices are, as a rule, lower than those of the manufacturers.

Double Pointed Tacks.—The radical advances which have taken place in Wire have necessitated important advances in the prices of Double Pointed Tacks, which are firmly held by the manufacturers at the new quotations. In view of the uncertainties of the market and the difficulty in obtaining the raw material, manufacturers are cautious about accepting orders for future delivery. This is a line of goods on which many of the wholesale merchants have ample stocks purchased at old prices.

Withdrawal of Quotations.—Many manufacturers are withdrawing prices. Among these may be mentioned the following:

THE JARECKI MFG. COMPANY, Erie, Pa., withdraw quotations on Brass Goods, Malleable Iron Fittings, Cast Iron Fittings, Iron Body Valves, Iron Cocks, Bushings, Nipples, Unions and Plugs.

E. M. RICHARDSON, Waltham, Mass., owing to advance in material withdraws quotations on Blind Fasts.

THE A. J. PHILLIPS COMPANY, Fenton, Mich., on account of the advances in cost of lumber, wire cloth and other materials, withdraw quotations on Screen Doors and Window Screens. They state that they will, of course, complete their unfilled contracts, but give this notice so that their customers may secure better prices for what they sell beyond the amounts contracted for.

Cordage.—No change has taken place in the price of Rope, and manufacturers are quoting as follows:

	Per pound, cents.
Manila, 7-16 inch and larger	9¼
" ⅜ inch	9¾
" ¼ and 5-16 inch	10¼
Sisal, 7-16 inch and larger	8¼
" ⅜ inch	8¾
" ¼ and 5-16 inch	9¼
" Lath Yarn	7¾

Manila Tarred Rope, 15-thread, is quoted 9¼ cents, as is also Manila Hay Rope, medium. The price of Jute Rope is 5½ to 6 cents.

These prices are for carload lots, ¼ cent per pound advance being charged for less quantity. Jobbers are in some cases quoting on the basis of 9 cents for Manila, 7-16 inch and larger, and 8 cents for Sisal on the same basis for carload lots, with an advance of ¼ cent for less quantities. The demand is fair, but, as a rule, manufacturers are devoting more attention to Binder Twine than Rope.

Shovels and Spades.—The advance of 75 cents per dozen in the price of Shovels and Spades, as determined upon by the association, has been put into effect by the manufac-

turers, and quotations on the new basis are being sent out. Jobbers are in some cases advancing their prices correspondingly, and in others are giving their customers some of the benefit of the old prices. It is to be noted that Oliver Ames & Sons Corporation, in their discount sheet giving their present prices, have not, as a rule, advanced the prices on their Ames brand, a slight reduction being made in a few of their numbers.

Balances and Scale Beams.—John Chatillon & Sons, 85-93 Cliff street, New York, in consequence of the repeated advances in material, announce the following revised prices:

	Discount. Per cent.
Class A, Light Straight Balances	10
" A1 and A2, Heavy Straight Balances	40 and 10
" B, Ice Balances	50 and 10
" C, Circle Balances	50 and 10
" D, Balances, with large dials	35
No. 2 Scale Beams	50
" 1 " "	40

The manufacturers of similar goods have made a corresponding advance.

Spring Hinges.—An advance of 10 per cent. has been announced by Warren McArthur, Chicago, selling agents for the manufacturers, on Holdback Spring Hinges. The new prices on these goods are represented in a general way by the discount of 50 per cent.

Wire Rope.—An advance has been made by the manufacturers of Wire Rope by which the discount is 7½ per cent. to consumers instead of 20 per cent. as heretofore.

Binder Twine.—A ¼-cent advance per pound in the price of Binder Twine has been announced by manufacturers, resulting in the following quotations:

	Cents.
White Sisal, 500 feet to pound	9⅛
Standard, 500 feet to pound	9⅛
Manila, 600 feet to pound	9⅝
Pure Manila, 650 feet to pound	10⅜

These prices are for carload lots, f.o.b. Eastern factories. An advance of ¼ cent per pound is charged in less than carload lots.

Since the advance in price on March 1 the demand has increased, and buyers are coming into market more freely. The higher values result from advancing tendency of Hemp and the prospect of a shortage in the supply of Twine if the yield in crops comes up to expectations.

Glass.—Attempts are still being made to induce independent Glass factories to join the proposed combine for next fire, but with poor success according to reports. Jobbing firms with factories are referred to as most difficult to bring into line, while the number of these and other independent factories projected for next year is on the increase. Without the co-operation of independent factories, it is believed in Glass circles that the American Glass Company cannot control the market, and the belief is increasing that there will be an open market next fire. From this time forward, for causes incident to the production of Glass at this season of the year, the output will diminish in volume week by week until May 29, at which time Glass making will cease until fall. Demand is reported as being up to expectations at the factories. Eastern jobbers are quoting 85 and 5 per cent. discount for less than carload lots. American Glass Company's prices to the regular trade are as follows:

Districts.	A.	B.	C.	D.	E.
5000 boxes or more	85 & 10	85 & 10	.....	.....	85 & 10
Carloads	85	85	85 & 5 & 2½	.....	85
3000 boxes or more	85 & 5	85 & 5	.....	.....	85 & 5 & 2½
1000 boxes or more	.....	.....	85 & 10 & 2½	.....	.....

These prices are subject to freight allowance.

Paints and Colors.—*White Lead, &c.*—The demand for White Lead keeps up, and a large amount is to be distributed. It has become difficult in some instances to obtain prompt deliveries, and an advance on card rates has been paid to obtain them. Another advance in Linseed Oil and the continued high price in Pig Lead point to higher values for the finished product in the future. Quotations remain as follows: In lots of less than 500 pounds, 6¼ cents; 500 pounds or over, 5½ to 5¾ cents.

Oils—*Linseed Oil.*—Another advance of 2 cents per gallon has taken place during the past week in the price of Linseed Oil, as follows: City Raw in lots of 5 barrels or more, 45 cents; in lots of less than 5 barrels, 46 cents per gallon. Boiled Oil 2 cents extra per gallon. Out of town Oils are selling about 1 cent less than City Crushed. The market is firm at the advance, while the lull in demand which often succeeds an advance in price is being experienced. The distribution of Oil for the first two weeks of the month was quite large, and apparently was required for stocks.

Spirits Turpentine.—The market is firm but quiet with ½ cent advance over local prices of last week. Turpentine is now quoted at 47½ cents for Southern and 48 cents for machine made barrels. Stocks at Savannah and other points are light, with none of the new crop yet in sight. Under these circumstances higher prices are not improbable.

Requests for Catalogues, Quotations, &c.

EAST END HARDWARE COMPANY, John M. Limberger, manager, Sunbury, Pa., have purchased from W. P. G. Hoffman his stock of Hardware, Stoves, &c. The new firm expect to do an extensive plumbing and tinning business. They will be pleased to receive catalogues, price-lists, &c., from the trade.

The Hall-Collins Hardware Company have succeeded to the retail department of the Kilbourne-Jones Company, Columbus, one of the oldest Hardware stores in Central Ohio. The Hall-Collins Company will do a general Hardware business, carrying a full line of Builders' and Cabinet Hardware, fine Tools and Cutlery, Paints, Oils and Varnishes and Mill Supplies. They are desirous of receiving manufacturers' latest catalogues and price-lists. In a paragraph relating to the company in our last issue their address was inadvertently omitted.

Oscar Keckonen, dealer in Hardware, Stoves, Tinware, &c., Calumet, Mich., has added a plumbing and tin shop to his business, and desires catalogues, &c., from manufacturers of Plumbing Goods.

Eagle Pass Lumber Company, Eagle Pass, Texas, have bought out the Hardware business of Jaggi & Heilscher of Eagle Pass, and will in future, in addition to their line of Builders' Hardware, carry a general line of Hardware, Farming Implements and Machinery, and make a special effort to extend their trade in these lines in the Republic of Mexico. The company advise us that exportations of American made goods to Mexico are rapidly increasing through that port, and as the Mexican International Railroad will soon begin the extension of their road from Durango to Mazatlan there is promise of a considerable increase in demand from that section. They state that they have established a branch office in Ciudad Porfirio Diaz, Mexico, where they have ample warehouse room, with side tracks, &c., for storing and shipping goods for the Mexican trade.

The Pawtucket Business Agency, Pawtucket, R. I., manufacturers' agents and jobbers in Novelties, Specialties, Light Hardware, &c., advise us of their desire to receive from the trade circulars and price-lists of goods in their line.

Maltby, Henley Company Sell Their Hardware Business.

MALTBY, HENLEY COMPANY, 20 Warren street, New York, have sold to the Smith & Hemenway Company, who for a year or more have occupied a portion of the same premises, their entire Hardware business, good will, trade-mark, &c., and have likewise turned over to them all unfilled orders for Hardware. Maltby, Henley Company will continue in business, devoting their entire attention in the future to the Silver Plated Ware and kindred lines and Steel Tinned Spoon branch of their business. Smith & Hemenway Company are manufacturers and importers of Cutlery and Hardware Specialties, marketing among other lines the entire product of the Utica Drop Forge & Tool Company, Pliers, &c., and Razors made by the Swedish Razor Company, Worcester, Mass.

New England Iron and Hardware Association's Annual Banquet.

THERE was something exhilarating in the atmosphere of the reception room of Young's Hotel, Boston, on Tuesday evening, March 21, when over one hundred members and guests of the New England Iron & Hardware Association assembled to greet each other before sitting down to their sixth annual banquet, which was later served in the large dining room of that hotel. It is a popular tradition that New England people take their pleasure solemnly, but an advancing market and the onward rush of prosperity in the Hardware trade proved strong enough to break the thin crust of ice and show Boston merchants in their true light as genial gentlemen and hearty good fellows. Everything had been carefully planned by the efficient committee, consisting of H. C. Bangs, Harry L. Doten, Charles F. Dowse and John T. Boyd, chairman, but the affair ran so smoothly that it appeared to go of its own accord.

Promptly at 6 o'clock the company, led by President Bangs and the special guests of the association, proceeded to the tables, and, after a blessing had been asked, "America" was sung standing. The words of this hymn, with those of songs of less sentiment but more rhythm, such as "Streets of Cairo," "Old Black Joe," "My Old Kentucky Home," "Jingle Bells," and "Auld Lang Syne," were printed and copies given to each person. Throughout the dinner orchestral music was interspersed with the courses and later the entire company joined in singing songs selected from the sheets. It was pleasant to observe the contented and happy expression on each face and delightful to hear men sing who had never sung before—such wonders do full stocks and a rising market work.

Although there was no formal toast list and several promised speakers were unable to attend, the post prandial features were admirable. The committee were fortunate in securing the services of Charles Clark Adams of Sargent & Co. as toastmaster. Mr. Adams gracefully and wittily ushered in each speaker and gave to the whole entertainment the swing and go so necessary for the complete enjoyment of such occasions.

Much credit is due to the chairman of the dinner committee, John T. Boyd, and his able assistants, also to E. L. Haley, who is actively engaged in the work of the association, for their untiring efforts in planning and perfecting the details of the evening.

Among the visiting Hardware merchants and manufacturers present were the following:

L. H. Pease, Stanley Works, New Britain, Conn.
C. A. Earl, Russell & Erwin Mfg. Company, New Britain, Conn.
E. H. Mansfield, Russell & Erwin Mfg. Company, New Britain, Conn.
W. N. Rice, Sargent & Co., New Haven, Conn.
Col. R. S. Woodruff, C. S. Mersick & Co., New Haven, Conn.
Charles R. Stark, Rhode Island Perkins Horse Shoe Company, Providence, R. I.
Charles C. Lewis, Springfield, Mass.
Fayette R. Plumb, Philadelphia, Pa.
Thomas Russell, Cambria Iron Company.
W. Sargent Locke, Carnegie Steel Company.
E. J. Neale, Peck, Stow & Wilcox Company, Southington, Conn.
D. Arthur Brown, Concord Axle Company, Concord, N. H.
W. Chamberlain, Emery, Waterhouse & Co., Portland, Me.
H. P. King, King, Dexter & Co., Portland, Me.
Geo. W. Thurston, American Screw Company, Providence, R. I.
C. S. Van Wagoner, Van Wagoner & Williams Company, Cleveland, Ohio.
J. J. Teeple, Van Wagoner & Williams Company, Cleveland, Ohio.
Geo. E. Holton, Bryden Horse Shoe Company, Catasauqua, Pa.
Hobart B. Ives, New Haven, Ct.
John H. Congdon, Congdon & Carpenter Co., Providence, R. I.
Francis W. Carpenter, Congdon & Carpenter Company, Providence, R. I.

The Company

The banqueters were seated at four tables, table 1 being the guests' table. Following is a complete list of those present:

TABLE I.

Jesse C. Ivy,	President H. C. Bangs,
W. D. Parlin,	George W. Morse,
Henry R. Pierson,	Rev. Stephen H. Roblin,
C. E. Adams,	Edgar Perry,
Robert A. Boit,	Fred. A. Caton,
Hon. Wm. M. Olin	Walter C. English
Hon. Patrick A. Collins,	Charles C. Adams.

TABLE II.

T. H. Baldwin,	J. H. Robbins,
C. S. Van Wagoner,	J. J. Teeple,
A. H. Decatur,	W. A. Hopkins,
Chas. H. Breck.	E. J. Neale,
Increase E. Noyes,	Fred H. Butts,
W. A. Rice,	Luther Little,
H. P. King,	Hayward C. Dodge.
R. M. Boutwell.	Geo. P. Bullard,
Chas. E. Bowler,	W. M. Horne,
H. N. Haven,	C. F. Bragg,
Winthrop G. Norris,	E. L. Haley,
George E. Holton,	George W. Thurston,
Hobart B. Ives,	W. G. Angell,
J. N. Mason,	J. F. Blauvelt,
Geo. J. Mulhall.	

TABLE III.

Fayette R. Plumb,	Leon C. Carter,
Samuel A. Bigelow,	D. W. Simpson,
Fayette R. Plumb, Jr.,	Francis B. Dana,
Charles F. Dowse,	S. T. P. Martin,
Josiah E. Bacon,	Charles H. Bolles,
William H. Bacon,	James N. Frye,
W. Chamberlain,	E. L. Richards,
L. H. Pease,	C. A. Earl,
Geo. W. Herrick,	A. M. Wiley,
W. Q. Wales,	E. H. Mansfield,
Geo. W. Gabriel,	Durnin & McLaughlin,
A. H. Ranlet,	James A. Monroe,
H. W. Waite,	N. L. Moore,
Samuel B. Reed,	Walter L. Doten,
Harry L. Doten,	Willard A. Paul.

TABLE IV.

D. Arthur Brown,	Francis W. Carpenter,
John Wales,	John H. Congdon,
Geo. R. Wales,	Gilbert C. Carpenter,
A. J. Chase,	Charles R. Stark,
C. H. Parker,	James F. Field,
P. F. Burke,	A. H. Inman,
Charles H. Eager,	L. S. Cook,
M. McBarron,	E. P. Sanderson,
J. A. Farrington,	Thomas F. Russell,
Robert E. Hofer,	Chas. C. Lewis,
F. A. Dilworth,	R. S. Woodruff,
W. Sargent Locke,	Arthur C. Harvey,
E. W. Leete,	C. W. Henderson, Jr.,
Chas. E. Stumcke,	Charles King.
John T. Boyd,	J. Bradford Hunter.

After a pleasant two hours spent at the table President Henry C. Bangs called the company to attention, and, after a few preliminary remarks, delivered the following address:

President Bangs' Address.

I esteem it an honor to be permitted to welcome you to this the sixth annual banquet of our association. Six years now we have labored together in this our association work, and to-day we are perhaps more strongly united than ever before since our organization.

The past year has been a year such as we, as a nation and as Iron and Hardware merchants, seldom see. One year ago we, as a people, were facing we hardly knew what. One-third of a century had passed since the streets of our cities resounded with the sounds of

armed American citizens, called forth from the counting room, the shop and the farm, in response to the call of our noble President, whose duty it was to uphold the honor of his country and ours, and we found ourselves in the midst of awful war with a foreign power. We all remember the check upon our business plans, all interest being centered in the great cause of our common country. A few short months, short perhaps to us, but, oh, how long to our heroes? Who can tell except those who were in actual contact and bearing actual responsibilities of war?

Thanks to a gracious Providence and a noble people, the cloud lifted, the strain was relieved and we took up business with renewed vigor. We in the Iron and Hardware interests, who had been looking and looking in vain for so many years for some of the old time prosperity that our older associates often spoke of, were wondering if we of the younger generation were not lacking in some of the essentials of our older friends, all signs in the Iron and Hardware lines seeming to fail, when from somewhere, and so sudden we hardly knew when, the sun of prosperity seemed to burst upon us. This sun, however, did not seem to rise in the old time East, but from the newer West, and we trust its going down will not be hurried, but its life giving warmth and brightness will continue spreading its rays of business prosperity from the far away Pacific to the rock bound shores of our entire New England, not only in prosperous Iron and Hardware business, but in all of our industries, knowing that what is for the good of one, in the spirit of our association, is for the good of all.

And may I be permitted now to say a word to members of our association who may feel at times that the association is of no use to them? We have members, proprietors of large business interests, who feel that the broad view is in the fact that, banded together as we are, we can get recognition at the hands of manufacturers for the correction of abuses of various kinds, and you jobbers here know of many ways for improving the jobber's condition, as it has existed for the past few years, and as it will exist or grow worse in the future, unless we all take some interest in its relief.

It is estimated that our membership represents a combined capital of $25,000,000 or $30,000,000. Is there any jobber present who dares to say there can be no weight in such combined effort? We expect, through association work, the jobber in Iron and Hardware will not have his epitaph written until at least the present generation shall have had their halcyon day and been labeled "out of date," when we shall then be willing to let those coming after us fight their battles, should the age of Iron and Hardware not fully have passed away.

And, gentlemen, in closing let me refer to a remark made by our honored Ambassador to the Court of St. James in his recent speech, when he expressed the wish that we, these two great nations, may be rivals for business and the betterment of mankind the world over, but not enemies. So may we be business rivals for the best results, but still holding confidence in each other as business men for the betterment of each and all.

Letters of Regret.

At the close of his address, Mr. Bangs read letters of regret from Roger Wolcott, Governor of Massachusetts, and expressed the disappointment of Mayor Quincy at his inability to be present, and read a letter from Postmaster H. A. Thomas of Boston, who, owing to illness, could not come. A telegram of regret from T. James Fernley, secretary of the National Hardware Association, was also read. Chas. E. Adams of Lowell was detained at the last moment by illness.

Mr. Bangs then introduced Charles Clark Adams as toastmaster of the evening, saying that among other good things acquired by the association was a permanent toastmaster in the person of Mr. Adams, who has the position by right of conquest, having served on many former occasions to the great satisfaction of all.

Mr. Adams proposed the toast, to the health of the President of the United States, which was drunk standing. Mr. Adams then spoke as follows:

Charles Clark Adams' Speech.

I thank you, sir, sincerely, for your pleasant introduction, and this hearty reception from the members, among whom I count so many warm personal as well as business friends, is especially gratifying to me, as it is the first time I have been able to see so many of your kind faces since my return home from other lands.

Permit me to say, I have tried to travel with open eyes and an inquiring mind, and learned some valuable lessons, as well as drawn some conclusions from our friends abroad, but as we are to hear from a distinguished gentleman who has studied foreign methods of doing business, it will be at least modest on my part for me to listen to his suggestions before furnishing him with any of my ammunition. I can say, however, as a nation we are striding forward as young giants in the production and manufacture of the lines of products counted in Iron, Hardware and Metals, but I fear we are "but as recruits" in the selling of our wares; certainly, the old "veterans" of commerce on the other side view with astonishment, if not alarm, our nervous, hustling, American methods of literally hurling our goods at them, without much regard for profits. On some other occasion, when we are as a private family, around our own hearthstone, you may be pleased to hear some of my personal experiences.

To-night we are here to enjoy every delight of our annual banquet, and to quote the words of a prominent author: "The time to be happy is now." I once heard a story about the fall of man. A reverend gentleman said the reason the devil did not give the apple to the man but to the woman was because he knew the man would eat it all himself, but that the woman would go halves; therefore, my friends, I will proceed to introduce to you another speaker.

Rev. Stephen H. Roblin

was then introduced, and, as is usual with clergymen at public dinners, told some of the most entertaining stories of the evening. Then he spoke of what he considered the unholy criticism of the present policy of the Government and commended the late war as humanitarian and inevitable.

Introducing George W. Morse Mr. Adams said:

Mr. Adams Tells Two Stories.

We had hoped to have been honored with the presence of our Mayor, but a previous engagement prevents his being with us. His Honor may not be altogether forgotten if I should tell you an incident of his experience when passing as a mugwump.

The story goes that a Congressman from this State desired the appointment of a young friend in the Post Office Department. He was told he could get no position until a vacancy took place. He waited for several weeks, until his money was nearly exhausted, when one day he went to the Potomac beach. He found there many bathers and among them a young man whom he recognized as a clerk in the division where he sought a place. The clerk ventured beyond his depth and was drowned. The applicant lost no time in hastening to his Congressman. "Now," he said, "I can have a place. There is a vacancy."

"Where?" asked the Congressman.

"Why, a clerk in the division (naming him) is just drowned."

The Congressman looked at him sadly. "I regret to inform you," he said, "that you are too late. The place has been filled."

"How can that be? I have just seen him drowned and came right to you."

"Yes, I know," replied the Congressman, "but the place has been filled. It was obtained by a friend of Mr. Quincy, who saw the clerk going in and guessed correctly that he could not swim."

Judge White, who is noted for his tendency to explain things to his juries, expressed in a recent case his own ideas with such force that he was surprised the jurors thought of leaving the box. They did leave it, however, and were out for hours. Inquiring the trouble, the Judge was told that one of the 12 was standing out against the 11.

He summoned the jury and rebuked the obstinate one sharply.

"Your Honor," said the juror, "may I say a word?"

"Yes, sir," said the indignant Judge; "what have you to say?

"Well, what I wanted to say is, I'm the only fellow that's on your side."

Mr. Morse's Remarks

were brief and pleasant, but having no special topic he touched upon events leading out of the late war and other subjects suggested by the present situation.

Hon. Patrick A. Collins' Address.

After a song Mr. Adams introduced Hon. Patrick A. Collins, former United States Consul-General at London, England. Mr. Collins said that merchants who want to sell goods abroad depend most upon consuls, therefore he should speak on commerce. He advocated no entangling alliances, but rather free and friendly intercourse with the whole world. Formerly the two great rivals for the world's trade were Great Britain and Germany. To-day they are the United States of America and Great Britain. American goods will go, but they must be represented on the spot. Know the goods and intelligently push them. Manufacturers should study the peculiar needs of various countries and adapt their products to them. Mr. Collins counseled the acquirement of the languages of commerce as a means of extending trade.

Mr. Collins was honored at the close of his address by three cheers.

Address of C. S. Van Wagoner.

The toast master then called on C. S. Van Wagoner of Cleveland, Ohio. Mr. Van Wagoner spoke feelingly of his late partner, Mr. Williams, former president of the Hardware Club of New York, and expressed his pleasure at meeting so many of the Boston trade. He thought the present remarkable industrial conditions would not last long. Having a knowledge of the wonderful productive power of the United States, he said it would not be long before the output would exceed current demands, and unless we continue to cultivate foreign trade we could not avert another period of depression. He spoke very hopefully of our industrial prospects and counseled aggressive efforts to conquer the commerce of the world.

With the singing of "Auld Lang Syne" the company then dispersed, after an evening which was thoroughly enjoyed by all.

Trade Organizations.

Ohio Hardware Association.

John F. Baker, secretary-treasurer of the Ohio Hardware Association, is sending out generally to the Hardware merchants of that State a pamphlet, giving the proceedings of the convention held in Toledo, February 22 and 23, of which a full report has already appeared in our columns. The publication of these proceedings in this form is an evidence of the enterprise and progressiveness of the association and the energy with which they are working to still further increase the membership and thereby the efficiency and usefulness of the organization. The address of the president, H. C. Wiseman, of the Springfield Hardware Company, Springfield, is given in full. A list of the dealers represented at the Toledo meeting is also given, and referring to the desirability of having enterprising Hardware dealers connected with the association, the following appeal is made:

Appended hereto is a list of the dealers who were represented at all of the sessions. A glance at the names will show them to be the active and progressive Hardware dealers of the State. Surely there must be something in an association of business men that should appeal to the dealers of Ohio who are not members. The discussion of trade topics, the interchange of ideas, coupled with an enlarged acquaintance and the fellowship that exists between our members, all these must, in some degree, tend to moderate the sharp competition that usually exists between dealers and in its place beget a fraternal spirit that ought to prevail. An earnest invitation has been extended to the trade of Ohio to join our association. The secretary, in his annual report for 1899, referring to results that had been accomplished, said: "If the Hardware dealers of our State could but know the value of an organization which in its very nature is bound to be a guardian of their rights, they would quickly come forward and join us, thus protecting themselves and strengthening the association."

We shall be glad to have you join us, if you are not now a member. The dues are merely nominal, only $3 per annum, and, as to the expense of attending a convention, the reply that we make to this is that the benefits derived therefrom more than overbalance the expense.

Hardware Club.

The annual meeting of the Hardware Club of New York was held in the club rooms March 18. The following gentlemen were elected governors, Robert Sickels being chosen in the place of Peter McCartee, who declined a re-election: George H. Sargent, Arthur G. Sherman, Robert H. Swayze, Edward C. Van Glahn, Robert Sickels.

The reports of the officers of the club indicated a very prosperous condition, the financial exhibit being especially satisfactory.

The following names were added to the rolls at a meeting of the Board of Governors held March 17:

OTTO F. VON ARNIM,
220 Broadway, New York.
EDWARD E. BRUGGERHOF,
11 Broadway, New York.
WILLIAM P. CRARY,
Twentieth Century Mfg. Co., New York.
ALEXANDER HENDERSON,
17 Vesey street, New York.
JOHN T. KELLY,
Kelly & Jones Company, New York.
HENRY W. KING,
Worcester, Mass.
JOSEPH LEITER,
Chicago, Ill.
SCHUYLER MERRITT,
Yale & Towne Mfg. Co., Stamford, Conn.
WILLIAM G. TRIEST,
39 Cortlandt street, New York.
JOSEPH TRIPP,
Twentieth Century Mfg. Co., New York.
STEPHEN G. WILLIAMS,
9 Murray street, New York.

Missouri Retail Hardware Dealers' Association.

Arrangements are proceeding for the meeting at St. Louis, April 11 and 12, when the Missouri Retail Hardware Dealers' Association will be formally organized. It will be remembered that a call for this meeting was published in our issue 23d ult. Among those who will address the gathering will be C. W. Aldrich of Minneapolis, who is well known to the Western trade, especially in connection with Hardware association work. Other gentlemen prominently identified with Hardware organizations are expected to be present and give the Missouri merchants the benefit of their views. E. Thomas, Trenton, Mo., is secretary of the committee in charge of the arrangements for the meeting.

The Hardware firm of Kirk & Allen, Jamestown, N. D., have admitted a new member to the firm, Paul N. Allen, a son of the junior member. The style will remain the same.

The Knight of the Grip.

XXXII. OTHER HINDRANCES.

MOST of the business men who watch the trend of trade, and seek for the causes of the increase and decrease in its volume as changes occur, have reason to dread "Presidential year" and the excitement attendant upon the quadrennial campaign. It will be upon us again next year, and already there is occasional mention made of the dull season of business that will usher out the century as the issues of the nation's changing policy fill the minds of men to the subordination of other matters. The jobber dreads it perhaps more than either the manufacturer or the retailer for his expense cannot be cut down to any appreciable extent when the dull time comes, as can that of the manufacturer; nor is he, from the nature of his business, so liable to be carried off his feet by the excitement as the retailer, who comes in closer contact with the mass of the public, and so considers it an unmixed evil. Each campaign is more expensive than the last and makes greater demands upon the business interests of the country at large, and should there ever come a change that will make the national elections fewer no one will welcome it more heartily than the Hardware jobber, who loses trade through them from the time of the election of delegates to the great national conventions until after the inauguration in the following March.

"All Politics."

The waning trade as the excitement grows, and the salesmen's reports of "All politics here," "Will buy nothing until after election," "There is no business here and won't be until election is over," "All busy ratifying," "A rally in town and could get no one interested," "Skunked for the first time—will stay away until after election," "Will buy no goods until free silver passes," "Gone to Canton to see McKinley," "Gone to Youngstown to see Bryan," "On to Washington" and others of like nature that grow in frequency as the excitement becomes more intense are not calculated to make him look forward to the national election with pleasant anticipations.

Collections.

Perhaps of all the things that worry the salesman the matter of credits and payment of his customers' bills cause him the most trouble. It must be so so long as the trade contains men with character and capital rated from nothing up. There are a number of methods employed by different jobbers for solving the problem of how to get money from customers without friction and without allowing accounts to run beyond bounds. Some of the large houses have the salesmen collect the accounts, allowing the customer to deduct the cash discount upon all bills paid at the time of the salesman's visit, whether they have run 6 days or 60. One or two limit the liability to fixed amounts that are different with different customers, acording to their rating, the salesmen being forbidden to permit the indebtedness to exceed the maximum amount decided upon by the credit man. Others carefully investigate the credit of firms seeking to open an account, and when accepted permit them to purchase in such sums as they desire so long as they meet their obligations. Some houses will accept orders from almost any dealer, taking the fact that the salesman personally considers them all right as sufficient evidence of their worth. It is easy to understand that the house that is most careful in its watch upon the beginning of the accounts and the amounts of the sales has the least trouble in the collections, but whatever the system and the care and anxious thought expended in carrying it out there is friction with some customers regarding collections and the salesman must stand the brunt of the trouble.

"Capital Good; Credit Poor."

There are in every business men who are perfectly able to pay promptly and yet who seemingly never meet an obligation when due—who boast of the length of time a house will wait for money after the bills should have been paid and consider that they are proving their stability by letting the men who sell them wait as long as they will. Men of this stamp will resent a dun as a personal affront and look upon any attempt to secure payment in accordance with the terms of sale as an aspersion upon their standing. Again, there are whole sections of the country where the general practice among small dealers seems to be to let accounts run, paying with notes when unable to longer defer giving satisfaction in some manner, securing renewals when possible and putting off the evil day of liquidation so long as possible. It is far easier to handle without offense the man who would pay if he had the funds, but cannot, than the man who has the money and does not want to pay. The former will explain carefully to the salesman just how matters stand and when he can pay, and urge him to induce his house to wait; the latter will bluster and scold and play the part of injured virtue, and make it plain to the salesman that any indorsement by him of the house's policy will work him harm. So the salesman must suffer in silence or affect a sympathy with the offender and blame it all on to the credit man or the bookkeeper. Occasionally the anger of such a customer will rise to such a pitch that he will have nothing to do with the house or its salesman, and there is an account lost. Particularly is this likely to occur when the salesman attends to the collections and thus becomes identified, in the customer's mind, with the financial course of his employers.

Other Troubles.

There are many other things that enter into the lot of the jobber's salesman to set his efforts at naught. It is not many years since there was practically no trade from the latter part of June until the middle of August, and in dull years it was often necessary to take the men off the road for a month or six weeks. The times have changed latterly and the selling of futures has given the salesman something to talk about the year round. Many of the seasonable goods are sold six to nine months ahead of the time of consumption. Then the introduction of new lines has given the jobber an assortment that contains something salable at any season, though he still has some degree of dullness to struggle through at the time when farmers are busy harvesting and nothing is doing in the country towns, and again in the spring and fall, when roads are impassable and every village and hamlet is an island in a sea of mud. An unusually hot spell will make buyers loath to exert themselves sufficiently to buy. Inventory time comes with the beginning of the year, and the dealers will not fill up their stocks until the annual count is completed. Occasionally changes are made into new locations and a man arriving in the thick of the transfer to new quarters gets scant attention. Or a store burns down and the dealer has not had time to rally his energies for a new attempt. Or he is contracting his business preparatory to retiring. Or he sells out and the business passes into unfriendly hands.

More Hindrances.

Again, the rush of holiday trade comes, and the retailer is so busy making money that he has no time to spare in spending it. A store is robbed and the salesman writes: "These people were burglarized a few nights ago and don't feel as though they would ever want any more goods," probably reasoning with the old lady whose cow died, "Those that have nothing can lose nothing. Blessed be nothing!" Again, a salesman is too swift in his movements for the dealer to follow him

in his flight. One salesman reported "No sale" a number of times after visiting one firm, and when he came in I asked why he could not reach them. "I don't know," he said. "I quote the buyer my best prices, and he listens and says nothing. I show him my samples, and he looks them over and says nothing. I talk until I get tired, and he still says nothing. Then I quit." I happen to have lived next door to this buyer for a year or two in a little country town, and can appreciate the situation. He is really the slowest mortal I ever knew, and his sluggishness of movement and thought were subjects of universal comment in the place. I have no doubt that he would have bought had he had time to make up his mind, though I do not know that a salesman should be expected to wait until so very slow a man could catch up with him.

Query?

And so it goes! It would seem as though any departure from the calm, even level of ordinary existence interferes somewhere with the jobber's sales. The peculiar hindrances that beset his way do not often find mention, but they exist and are very real, and make every dollar of profit he wrests from his business a matter for congratulation. Does any manufacturer really cognizant with the needs and demands of the retail trade, its peculiarities and the tender and assiduous care required to create and keep a clientele in this field, imagine that he can handle the business to better advantage direct, or that the jobber's commission is easily earned?

(To be continued.)

Correspondence.

Mutual Fire Insurance and Hardware Organizations in the Northwest.

ADA, MINN., February 23, 1899.

To the Editor: I believe I can better reach the Hardware trade of the Northwest, in reference to the organization of a mutual fire insurance association and the merging of the State organizations into the more concrete form of the Northwestern Retail Hardware Dealers' Association, through *The Iron Age* than through any other medium. I speak as one who knows what he is talking about from experience as a member of the Northwestern Retail Lumbermen's Association, both in its insurance and other features. This association is probably the most effective of anything of similar import on the face of the earth. There is no reason why the Northwestern Retail Hardware Association should not become fully as effective.

One Strong Organization

The State associations of South Dakota and Iowa—possibly others—should be merged into the Northwestern Retail Hardware Dealers' Association, now comprising Minnesota, Wisconsin and North Dakota. There is absolutely no valid reason for the different State organizations, except that of pure sentiment. The interests of all are identical in every respect and could be so much better handled under the one strong organization. The element of strength would be in the strong financial backing with very limited assessments which increased numbers would give. It would furnish a strong,

Effective, Well Paid Working Force

always in the field ready to push every interest that may be to the good of the association. As it is now, each State has its half paid secretaries, who spend most of the time devoted to association work in raising money to pay salaries and meet expenses. I suppose the presidents and directors are expected to pay their own expenses. This should not be, and it would not be with one organization.

The secretary should be a strong man. I believe the lumbermen pay their secretary $3000, probably $3500. The president and directors should have per diem mileage and expenses. With such an organization there is power concentrated, and a wrong to the trade can be vigorously resisted and overcome.

The conditions of the Northwestern States are the same. The cities of St. Paul and Minneapolis are central to all, and from them as a center the interests of the Hardware dealers of these States could most zealously be guarded.

The Matter of Insurance.

In regard to the insurance feature, this is a source of tremendous power did the dealers but know it. This feature alone will pay directly the costs of organization ten times over and be the means of drawing practically every Hardware dealer into the association and keeping him there. It directly touches every dealer's pocket. The Northwestern Lumbermen are richer directly in the sum of $75,000 and more on this one item of insurance since the inauguration of the insurance feature five years since. Every lumber dealer gets his insurance to the amount of $3000 for one-third the annual cost he used to pay. I quote from the secretary's report of December 31, 1898:

The fifth insurance year of the Retail Lumbermen's Insurance Association has ended. The statement herewith presented shows its transactions for the past year and its present condition, and adds another proof of the wisdom displayed in its original inception and organization, and that the policy adopted in the management of its affairs, persistently carried out as it has been, has secured all that was claimed for it, in furnishing the best insurance for the least money.

We have had a year of heavy losses, a larger amount than the combined losses of the previous four years, and yet the assessments of this year, on the basis of 36 per cent., have contributed enough, with the interest received and agency fund, to pay all losses and expenses, only drawing temporarily from the surplus fund a little more than one-sixth of that which we had previously collected for the purpose of supplying any deficiency.

The average losses for the five years' business have been very little more than our original estimate, and we may, and doubtless will, now have a few years of small losses. Such is the experience of all insurance companies. We have, however, the satisfaction of knowing that without adding anything to the cost of insurance to our policy holders we have already collected a sufficient surplus to supply any deficiency for five more years, should our losses be as great during each year of that period as they were in the past year, a very unlikely occurrence. We have not only furnished our own policy holders insurance at a great saving on the former cost, but have forced the old line companies to reduce their charges to one-half their former rates. We deserve and should receive encouragement from all retail lumbermen, and every dealer should feel it a duty to place his business with and through us.

Security Offered.

Our present assets are	$61,398.25
Reserve required in accordance with all State laws	22,760.95
Surplus over reinsurance reserve	$38,637.30

which is almost 200 per cent. more than the laws of any State require and a larger percentage of surplus than the best stock companies can offer. Where can you find better security?

With these facts before us, instead of waiting until annual meetings, why cannot our Executive and Insurance Committees move for

Immediate Organization

of the Northwestern Retail Dealers' Insurance Association? Steps should also be taken by the different State Executive Committees looking toward the merging of the several State associations into the one Northwestern Association. The different sections of the country could

also be organized and thus a national association effected.

This article will apply as well to the organization of Implement dealers, in which the writer is also interested, and other lines of trade. Organization, with the insurance feature to directly grease it, is power.

F. L. HAMPSON.

Jobbers' Prices.

The following letter, referring to prices actually quoted to a Western retailer, may be of interest, representing as they do the condition of the market to this class of trade. Our correspondent, we may say, is a fairly representative retail merchant, doing a good but not especially large business, whose quotations may be taken as indicating in a general way the condition of the market in view of the active competition between great jobbing interests which results from his location:

The remarks made in your last issue under the heading "Condition of Trade," are correct and to the point. Situated as we are in easy reach of both St. Louis and Chicago jobbers, as well as those in other cities who honor us with frequent calls, we find no difficulty in buying from jobbers at lower prices than the manufacturers quote. The jobbers, of course, have put their prices up some, but they are still giving their customers the advantage of some of their purchases before the recent advances took place. Perhaps we can illustrate this best by mentioning some quotations made to us last week at about the date of your paper. Some of them are a little higher than the same houses quoted a month ago, but a good many of them are just about the same:

	Per cent.
Poultry Netting, discount	80 and 10, delivered.
Cast Acorn Butts, "	80
Strap and T Hinges	extra 20 to 25
Wrought Butts, discount	80
Bright Wire Goods, "	90 and 25
Common Carriage Bolts, discount	75 and 15
Common Auger Bits, "	80
Agricultural Wrenches, "	80 and 10 and 5
Maydole's Nail Hammers, "	33⅓ and 10 and 5
Files, first quality, discount	80
Wrought Goods "	90 and 10
Copper Rivets, "	50

We could give you a much longer list, but this will do. Business is somewhat better than it has been, and we are looking for a good trade, especially if buildings that are planned for are erected and people not frightened by the advances they hear about, especially as the result of trusts and combines, which are unpopular with our customers.

Eaton, Cole & Burnham Company's Catalogue.

THE EATON, COLE & BURNHAM COMPANY, Bridgeport, Conn., and 253 Broadway, New York, have just issued an illustrated catalogue of their goods containing 327 pages, each 9 x 11½. In it is shown a large assortment of Iron and Brass Goods for steam, water and gas. The subdivisions of the work relate to Brass Valves and Brass Work other than Valves, Iron Body Valves and Iron body work other than valves, Iron Pipe Fittings, Plumbers' Brass Work, Pipe Machines and Tools, Pipe and Boiler Tubes, and miscellaneous goods. While they do not now carry stock in New York, their telegraph facilities (direct wire) are such, we are advised, that goods ordered late one day are ready for delivery in New York the next morning.

Sickels & Nutting Company's Catalogue.

SICKELS & NUTTING COMPANY, 35 Barclay street and 40 Park place, New York, have issued a compact, illustrated catalogue of nearly 300 pages, showing the large assortment of Hardware, Cutlery, Agricultural Implements and Farm and Garden Tools which they wholesale. The company are manufacturers' agents also for a number of prominent concerns.

Morrill Saw Sets.

IT is well known that one of the patents on Morrill's Saw Sets, which have a wide sale through the trade, expired some months ago and the Saw Set manufactured under this patent thus became common property and several manufacturers proceeded to make Sets on the same pattern. This they obviously had legal right to do, but some of these manufacturers stamped on the Saw Set itself the words "Morrill Pattern No. 1," and packed the Sets in boxes similar in size and style to the Morrill boxes, with practically the same inscription stenciled on the same, so that some purchasers who saw the boxes or Saw Sets naturally supposed that they were buying the genuine Morrill Sets. Mrs. Morrill, successor in business to the late Charles Morrill, in view of this condition of things, brought suit and a decision in her favor has been rendered by the Circuit Court of the Southern District of New York, Justice Lacombe issuing an injunction on February 27, 1899, enjoining the manufacture and sale of Saw Sets bearing upon the same or upon any boxes or packages containing the same, the name Morrill, or any colorable imitation of her name, device or trade mark; or from advertising or exposing for sale goods which in any way would lead the purchasing public to believe that they were purchasing genuine Morrill Saw Sets.

Trade Items.

THE LALANCE & GROSJEAN MFG. COMPANY, New York City, have awarded the contract for the new enameled ware addition to their large factory at Woodhaven, L. I., rendered necessary by the rapid growth in this branch of their business. The plans show a more spacious building than was at first contemplated. It will be situated on the block east of their present group of factory buildings, on ground already owned by the company, and will cover an area of 200 x 400 feet. The building, which is to be a one-story structure, will be devoted entirely to the extension of the enameled ware manufacturing department of the works. It will be divided into rooms for black iron and riveting, assorting and papering, pickling, nickeling and dipping, in addition to a large space devoted to drying racks, having a capacity of 80,000 pieces of Enameled Ware a day, and a row of 20 firing muffles, which, with 36 located in the main building, will give the works a total of 56 muffles. The new addition will give the Lalance & Grosjean Mfg. Company a potential output of over 100,000 pieces of Enameled Ware daily.

GEORGE W. CHURCH, 183 Greenwich street, New York, is closing out for the receiver a stock of S. J. Addis' Hand Carving Tools, made by Ward & Payne, Sheffield, England. To such as handle this class of goods, receivership prices will be made on a lot of about 2500 Chisels in various shapes and sizes, all in good condition.

THE many friends of Robert Donahue, Burlington, Iowa, will share with him the sorrow caused by the death of his son, George Donahue, on the 14th inst. The deceased was born in 1869, was prominently identified with the Robert Donahue Iron & Hardware Company, and had a most promising future. Mr. Donahue suffered from a severe attack of the grip in 1891, from which he never entirely recovered, finding it necessary from time to time to temporarily suspend his labors.

Price-Lists, Circulars, &c.

CLARK, HORROCKS & CO., Utica, N. Y.: Catalogue of nearly 100 pages devoted to Fishing Rods and Fishing Tackle.

JOHN PRITZLAFF HARDWARE COMPANY, Milwaukee, Wis.: Bicycles and Bicycle Sundries.

SIMMONS HARDWARE COMPANY, St. Louis, Mo.: Circular No. 327, 192 pages, showing a large line of spring goods.

LEE-GLASS-ANDREESEN HARDWARE COMPANY, Omaha, Neb.: The World and Lee Bicycles and Bicycle Sundries.

BUHL, SONS & Co., Detroit, Mich.: Spring circular of seasonable goods.

Among the Hardware Trade.

Crouse, Leonard & Co., Stephenville, Texas, have closed out their Implement and Wagon department and will hereafter devote themselves entirely to the sale of Hardware, Stoves, Queensware, Tinware, Saddles and Harness and Buggies.

G. M. Bryan, Jr., & Co., Galveston, Texas, whose Bicycle department has heretofore been run under the style of W. P. Bennett & Co., will continue this business at the same stand but under their own firm style.

Clapp & Treat, Hartford, Conn., have moved into more commodious quarters two doors from their old location. Here a number of improvements have been introduced, among them a sample display room.

James R. Adams, under the style of the Tyler Hardware Company, has recently bought for cash the stock formerly carried by the Caspary Hardware Company and is continuing the wholesale and retail Shelf and Heavy Hardware, Tinware, Agricultural Implement, Buggy and Wagon and Sporting Goods business at the old stand. Mr. Adams is making radical improvements in the store, putting in new shelving which will run to the ceiling, ladders, &c., with a view to bringing the establishment up to date in its appointments. Mr. Adams was with T. M. Roberts of Minneapolis, Minn., for several years, and later was connected with the Minneapolis Iron Store Company. In 1889 he began traveling for the Paddock-Hawley Hardware Company of St. Louis and represented them on the road in Arkansas, Texas and Louisiana up to January 1 of the present year.

G. W. Young & Co., Phillipsburg, Kan., have disposed of their business to J. M. Wood & Co.

Robert Barlow has succeeded W. C. Barnstedt at Arcadia, Wis.

E. Stewart, Hardware merchant at Greenup, Ill., has taken possession of his new building.

C. P. Wright's Hardware store at Aylmer, Quebec, was destroyed by fire a short time since.

J. L. Jarvis has succeeded J. L. Jarvis & Co., Langford, S. Dak. Mr. Jarvis has also purchased the stock formerly carried by Geo. C. Dunton.

The firm of G. H. Marshall & Co., Ferris, Texas, have been dissolved, and G. H. Marshall will continue under his own name.

The establishment of Dixon & Mower, Sheldon, Vt., has been entirely destroyed by fire.

Steinhauer & Hildahl have succeeded Steinhauer, Hildahl & Stevenson, Pierpont, S. Dak.

C. B. Cole & Co. of Seymour, Ind., have been succeeded by the Union Hardware Company. The present proprietors have been connected with the business for the past 12 years.

J. D. Roach & Co. have succeeded to the business of J. D. Roach, Campbell, Texas.

Kincannon Bros. have succeeded Wilkerson Bros. in the Hardware and Lumber business at Bruceville, Texas.

Grumbacher & Scheid have sold out their business at Eaton, Ohio, to G. F. & W. Poos.

The Van Buren Hardware Company, Van Buren, Ark., have been organized with a capital stock of $10,000 and the following officers: T. W. Edmondson, president; W. F. Britt, vice-president, and F. W. Palmtag, secretary-treasurer. Their business will be principally retail, handling Shelf and Heavy Hardware, Stoves and Tinware, Agricultural Implements, Sporting Goods, Harness, Saddles, &c.

McLain & Earley have succeeded McLain & Peters at Summitville, Ind.

E. Y. Hawley is successor to A. W. Hawley & Son at Northboro, Iowa.

The De Kalb Hardware & Furniture Company, De Kalb, Mo., have been incorporated with a capital stock of $4500. The company will conduct a retail business in Hardware, Stoves, Tinware, Agricultural Implements, Sporting Goods, &c.

R. E. Finch, Jr., has opened a new store at Valley Mills, Texas. Mr. Finch is carrying a line of general Hardware, Stoves, Tinware, Harness, &c.

Whaley & Co. have succeeded Jones & Whaley in the Hardware, Stoves and Implement business at Humphreys, Mo.

F. L. Polack has sold out his business at Glencoe, Minn., to Classen Bros.

Dauphin & Son have succeeded Michaelson, Dauphin & Son in the Hardware and Implement business at Tilden, Neb.

The Hardware and furniture firm of P. J. Reifle & Co., Rocky Ford, Col., have been dissolved, H. A. Dawley succeeding.

R. J. De Weese has sold out his stock at Port Jefferson, Ohio, to Barnett Hardware Company.

About $75 worth of Cutlery and Razors was stolen from Mr. Utt's store at Oklahoma City, O. T., a short time since.

Howell Bros. have embarked in the Hardware business at Fairbury, Neb. Besides a line of Hardware they are carrying Stoves, Tinware and Sporting Goods.

Baldwin & Sibley of Lemars, Iowa, have purchased the Hardware and Implement business of E. Hyde & Son, Oyens, Iowa.

John Wilson & Sons, Stromsburg, Neb., have sold out to Olson & Edberg.

John Harper and S. T. Beale have formed a partnership and bought the Clark Hardware Company's stock at Paw Paw, Ill.

J. L. Butterworth, Radcliffe, Iowa, has been succeeded by J. L. Butterworth & Co., who are intending in the fall to erect a large brick block 50 x 120 feet in dimensions.

The Lamar Hardware Company, Lamar, Col., have recently been incorporated with a capital stock of $10,000 to carry on a retail business in Hardware, Shelf and Heavy, Stoves and Tinware, Sporting Goods, Agricultural Implements, &c.

C. A. Thompson is successor to Thompson & Meadows in the Hardware business at Hopkinsville, Ky.

James Glanville has succeeded Sheckler & Glanville at Stockton, Ill.

P. M. Little's Hardware store at New Waterford, Ohio, was robbed of $125 worth of goods a few weeks since.

J. K. Lloyd has succeeded W. J. Lloyd at Mena, Ark. Mr. Lloyd is doing business on a cash basis. He has just commenced the erection of a brick building, 50 x 100 feet, two stories high.

W. S. Huntley is successor to H. D. Ryder at Woodstock, N. Y.

The Amsler Hardware Company have opened a new store at Tonica, Ill.

McMillan & Gay are embarking in the Hardware, Stove and Tinware business at Northboro, Mass.

John W. Hartwell has just entered the wholesale and retail business at Northampton, Mass. Mr. Hartwell is carrying Shelf and Heavy Hardware, Agricultural Implements, Sporting Goods, and Carriage Makers', Blacksmiths' and Mill Supplies.

Thomas Lumpkin and W. H. Lumpkin have formed a partnership under the style of Lumpkin Brothers, Cartersville, Ga., and have opened up in the Hardware, Agricultural Implement and Machinery business.

Surginer & Miller is the style of a new Hardware and Implement firm at Floydada, Texas.

Souder & Crouthamel, Souderton, Pa., have purchased the stock of the late B. C. Barndt and removed it to their present store.

E. Mead & Co., San Jacinto, Cal., Hardware and Implement merchants, recently lost their Implement room by fire.

D. W. Thomas has succeeded Hanks & Co. in the Hardware business at Harriman, Tenn.

Oatts & Christian and C. R. Stephens, Hutto, Texas, have consolidated their stocks of Shelf and Heavy Hardware, Agricultural Implements, &c.

J. W. Willis has admitted his brother to partnership in his Hardware business at Greenville, Tenn., under the style of J. W. Willis & Bro. The firm are making considerable additions to their stock in view of the expectation of a good spring and summer trade.

M. D. Sears has succeeded Sears & Patterson at Delhi, N. Y.

Lestoe & Sherer have succeeded Clark & Lestoe at Moscow, Idaho.

Rutter & Rideout have dissolved partnership at Waltham, Mass. Nathaniel P. Rutter is now conducting the business under his own name.

B. W. McCarty is successor to McCarty Bros. in the Hardware and general mercantile business at Lancaster, Texas.

M. H. Tanner & Co., Winsted, Conn., have sold out to Joseph F. Carroll, who has been in their employ for the past ten years and is thoroughly familiar with the business.

Holliday & Kightlinger have dissolved their partnership in business at Greenstown, Ind., and John H. Holliday is successor under his own name.

Merkel & Zeller have succeeded Christian Merkel at Waterman, Ill., in the Hardware, Stove and Tinware, Implement and Wagon and Buggy business.

Miscellaneous Notes.

Victor Automobiles

Overman Wheel Company, Chicopee Falls, Mass., are now exhibiting the Victor automobile or horseless carriage at their works. A regular stock of the carriages will be on the market by May next. They refer to it as perfectly automatic in character and graduated from the barest motion up to whatever the owner wishes it geared to, an average gearing being about 20 miles an hour. The vehicle is guaranteed for 25 per cent. grades, equivalent to over 1300 feet rise in a mile. Regularly the engines are 4 horse-power, a rig corresponding somewhat to a runabout, with places for two, weighing about 600 pounds and is equipped with 28-inch pneumatic rubber tires from 2 to 5 inches in diameter as ordered, a medium size being 3-inch. They guarantee it to be perfectly safe, with no possibility of explosion, and put the cost of operation at ¼ cent a mile. Gasoline is used as a fuel to generate steam. The kind described costs about $1000 and the weight will vary somewhat according to the style of the vehicle. The company are going to build automobiles also for carting, trucking, cab service, &c.

Rolling Step Ladders.

G. A. Milbradt & Co., St. Louis, Mo., in their catalogue No. 18, just issued, illustrate a number of rolling and trolley step ladders, now so commonly a part of the well equipped modern store. The ladders are made of oak lumber, to order and to fit each particular place, diagrammatic figures being used in the catalogue freely to assist purchasers in making correct measurements. The sides of bent ladders, as well as all others, are made of one solid board and are grooved for steps, which are neatly fitted in. All corners are rounded and the parts held with long screws. The artistic iron work is malleable and plated. At the top of the ladder are two hook shaped irons having two finely adjusted wheels, there being two kinds, suitable for either iron or wood track. Two fork shaped irons are screwed on the sides of the ladder near the lower end, to which are attached the rubber rollers that usually run against the edge of base or counter shelf.

B. T. Co. Locking Pivot.

Brainerd, Tanner Company, 107 Chambers street, New York, are manufacturing the improved B. T. Co. locking pivot for light and heavy windows, as here illustrated. Fig. 1 represents the pivot in position, sustaining a partially opened window, and which can be locked at any of 12 positions. Fig. 2 shows the locking pivot complete for the bottom of the sash. Fig. 3 is the under plate of locking pivot, the groove around the point being a channel for a steel ball bearing, so even the heaviest windows can be easily swung. The top pivots are made for plain or rabbeted sash. There are three sizes—No. 1 for 1¼ to 1¾ inch sash, No. 2 for 2 to 2¼ inch sash and No. 3 for sash heavier than 2¼ inches. The sizes mentioned are divided also into classes, A consisting of a locking pivot and ordinary pivot for top of sash. Class B of a locking pivot and a pivot for rabbeted sash, and Class C locking pivots with ball

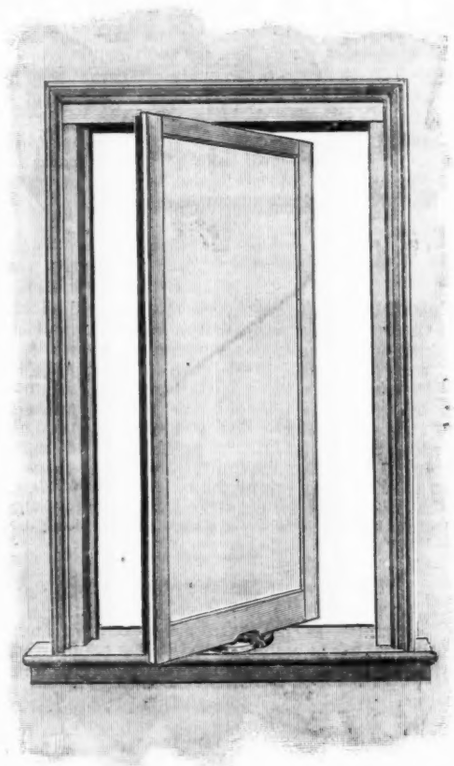


Fig. 1.—B. T. Co. Locking Pivot in Position.

bearings and a pivot for rabbeted sash. Class A is made in bronzed iron, bronze plate and bronze metal, the other classes being of solid bronze metal. The manufacturers call attention to some of the advantages of this device as dispensing with casement adjusters, sash locks and pulleys, cords, weights, &c., this saving of cost being more

Fig. 2.—Locking Pivot Complete for Bottom of Sash.

Fig. 3.—Under Plate of Locking Pivot.

important in factories, foundries and all kinds of workshops than fine buildings. The point is also made that single sash can be used instead of two sashes.

The Seaman Expansion Bolt.

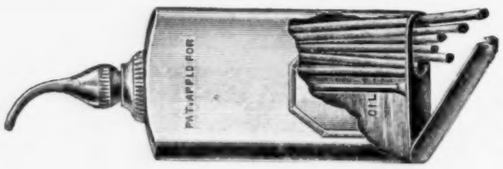
The accompanying cut shows the expansion bolt which Daniel C. Seaman & Co., 3433 North Sixteenth street, Philadelphia, are putting on the market. The expanding

Seaman Expansion Bolt.

feature is obtained by two cast iron wings, tapering in shape and having at the small ends round flanges, which fit into a chamber in the circular end nut through which the bolt passes. When the bolt is turned into the nut the wings are locked and are expanded, on further turning of the bolt, by a round tapered nut set on the bolt at a point to give the required amount of expansion. The bolts are made in a number of sizes.

Combination Safety Oiler.

The Safety Oiler Company, 65 Nassau street, New York, have added to an existing line of pocket oilers the Combination oil can, here illustrated. The oil tube telescopes into another tube in such a way that no oil can flow until the tube is drawn out about 1¼ inches, this feature being a decided advantage in reaching interior parts, especially



Combination Bicycle Oil Can.

in sewing machines, typewriters, &c., as well as bicycles. Besides the oil chamber there is a compartment to hold matches or other small accessory, as graphite &c. The can is made of spring brass, polished and nickeled, the body of it being 2⅜ x 1⅜ x ½ inches in dimensions. It is said to be non-leakable when the tube is pushed in, as shown in the engraving. The company also are about to bring out an engineers' oil can, with three or more telescoping tubes that can be quickly adjusted to reach any part and to obviate carrying more than one oiler. It is stated that no oil can be lost with this can when the tubes are in, no matter what its position.

The Invincible Vapor Lamp.

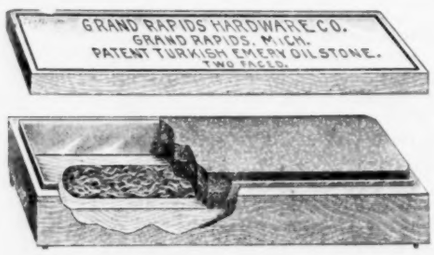
An illustration is herewith given of the Invincible vapor lamp, which is being offered to the trade by the Invincible Mfg. Company, Wilmington Ill This is a lamp

The Invincible Vapor Lamp.

for use in stores or shops where a bright light is required at low cost. Common stove gasoline is successfully used in this lamp, but the manufacturers state that the better the grade the better will be the light. The lamp is made of brass throughout and finely polished. The tank holds 1 quart, which will run the lamp full head for about seven hours. The flame is generated by a drip cup on the same principle as a gasoline stove, and either alcohol or gasoline can be used in starting it, but alcohol is preferred, as it makes no smoke. When the lamp is running it makes neither smoke nor odor and one of them is stated to be capable of perfectly lighting a room 15 feet square. It is referred to as giving a peculiarly soft and pleasant light. The burner and mantle are made expressly for this lamp, and the manufacturers say no expense is spared to produce a perfect and economical light. Two styles are made, one with a heavy tin tank, iron pipe and plain chimney, and the other of bright bronze throughout with either a plain chimney and white shade or milk white chimney with no shade.

Double Faced Turkish Emery Oil Stone.

Grand Rapids Hardware Company, Grand Rapids, Mich., have just put on the market the two-faced Turkish emery oil stone here illustrated. The leading characteristic of this novelty, aside from the cutting quality of the stone, is the recess in the bottom of the box, in which waste saturated with water or kerosene, preferably water, is placed. The capillary attraction keeps the liquid drawn into the stone, and so always ready for use. The

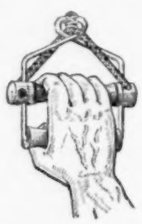


Double Faced Turkish Emery Oil Stone.

stone can also be removed and used on a heavy knife as a hone. The box is fitted with four brads on the bottom to keep it firmly in place on a bench when in use.

Little Giant Wrist Machine.

Little Giant Wrist Machine Company, 26 West Broadway, New York, are offering the Little Giant wrist machine, shown herewith. The object of it is to exercise and strengthen the wrists by using it, say, ten minutes twice each day, thus developing and strengthening the grip and muscles of the forearm. The extreme dimensions are 5½ inches each way. The hardwood handles slide on a stout



Little Giant Wrist Machine.

tinned wire frame, and are held apart by the tension of a double elastic cord. Gripping the handles they slide together quite easily, but the average individual will find 20 or 30 seconds his limit for rapid work at first. It is especially recommended for any who suffer from writers', typewriters', telegraphers', &c., cramp.

White Mountain Ice Pick.

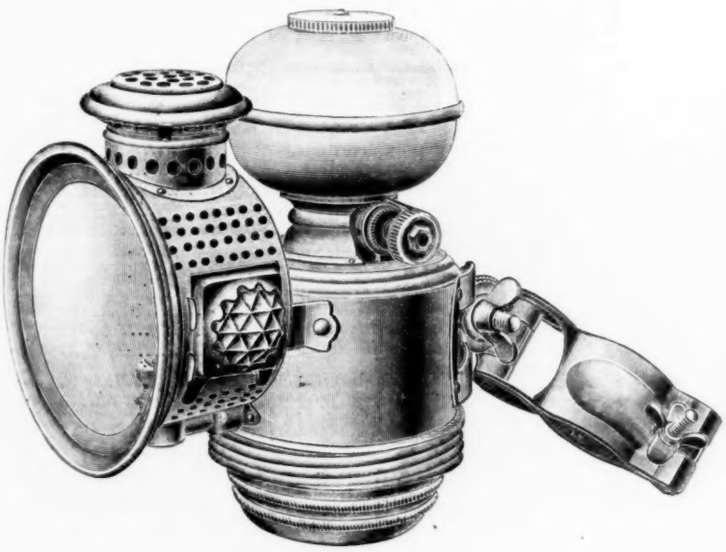
The Nashua Iron & Brass Foundry Company, through their selling agents, Homer F. Livermore, 85-87 Pearl

White Mountain Ice Pick.

street, Boston, and Allerton-Clarke Company, 97 Chambers street, New York, are placing on the market the White Mountain ice pick, here illustrated one-half size. The handle is made of gray iron, japan finish and the blade, which slides into the handle, of Bessemer steel. In use the point is placed on the ice, and the heavy handle used as a ram, so that the blows are all concentrated in one place, thus getting what is required without littering the floor with small chunks.

M. & W. Lancaster Gas Lamp.

Matthews & Willard Mfg. Company, Waterbury, Conn., and 40 Murray street, New York, have put on the market the Lancaster acetylene gas lamp, here illustrated. One of the most important features of the lamp is the patent water trap and gas seal at the base of the water reservoir above. This is so made that the water valve in connection with it affords complete control of the light, which it is said can be instantly graduated from a tiny jet to a large flame. In use the exposed parts, including water chamber and carbide holder, we are informed, are always cool, the construction being such that all gas generated is used in light instead of being diverted to heat. A detachable ¼-foot lava burner which can be readily cleaned gives a broad fish tail flame. Ordinary carbide can be used, the material being placed in a

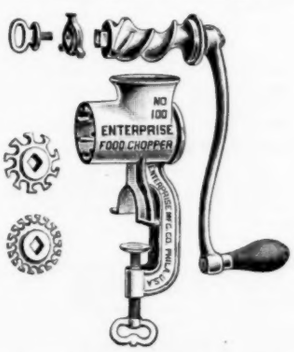


Lancaster Acetylene Gas Lamp.

corrugated holder which is constructed so as to facilitate the dissemination of water and gas and is very easy to clean. The reflector is removable and bracket adjustable to steering head with or without brake rod or either fork. With a full charge a powerful light can be maintained for five hours or the charge so regulated as to burn a less time, according to requirement. The manufacturers say it will not jar or blow out is non-explosive and throws a brilliant white light 100 feet ahead. The lamp is brass, nickel finished.

Enterprise Food Chopper.

Enterprise Mfg. Company, Philadelphia, Pa., for whom J. C. McCarty & Co. are agents, 10 Warren street, New York, have brought out the No. 100 food chopper, here shown. There are three separate cutting knives, for cutting



No. 100 Enterprise Food Chopper.

fine, medium or coarse, according to the requirement. The point is made that the product is uniformly fine, medium or absolutely coarse as one or another knife is used, and the particles are thoroughly chopped. Attention is also drawn to its wearing qualities, which are said to be of a superior character. This machine is designed more particularly for family use.

M. W. Chandler & Sons have purchased the business of Owen, Clements & Co., Marengo, Iowa. The new firm have installed the Warren patent shelving and are erecting a new Implement room in the rear of the store.

Champion Water Filter.

The Champion Safety Lock Company, 99 Woodland avenue, Cleveland, Ohio, are marketing the water filter here shown. The filter consists of an outer casing inclosing a filter tube and an automatic cleaner. The filtering medium is a thick, fine, natural stone tube, which is ferred to as impervious even to microscopic particles of

Fig. 1.—Champion Germ Proof Water Filter.

solid matter as well as all organic germs. The cleaner is a strip of very hard stone with a metal back which extends along the entire length of the filter tube, and is pressed against it by the action of the automatic cleaner adjuster. In cleaning the filter tube is revolved by turning the filtered water outlet at the top around several times, so that the cleaner stone by pressing against the filtering tube causes its entire surface to be thoroughly cleaned. The inlet and flush valves (which are both at the bottom) after the cleaning process is finished are

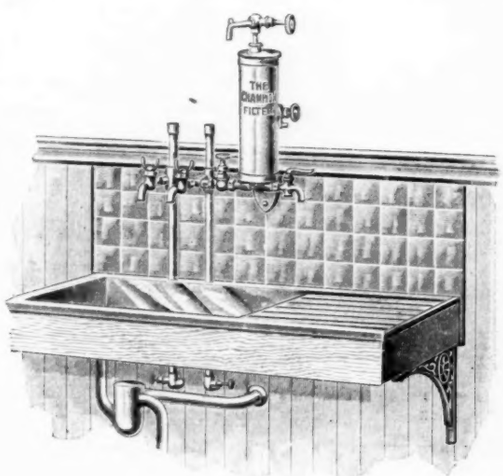


Fig. 2.—Application of Filter to Sink Fixture.

opened wide so that the accumulated matter can be thoroughly flushed out; in this way keeping up the filtering capacity of the surface by keeping free the filtering pores in the stone. Thus it is pointed out the filter can be easily kept clean without taking it apart. The manufacturers issue a catalogue showing their entire line of filters, embracing five styles and 14 sizes.

Steel Giant Grubbing Machine.

New Century Mfg. Company, 22 Clinton place, New York, are making the Steel Giant grubbing machine here illustrated. It is made of steel, with long powerful oak lever, in Nos. 1, 2 and 3, weighing respectively 25, 35 and 70 pounds. By the use of this implement saplings, bushes, sprouts and all sorts of rank weeds can be expeditiously

Steel Giant Grubbing Machine.

removed and exterminated. It is especially useful in cleaning up new land, fence corners, &c. No. 1 is designed for lawn and garden work, No. 2 for ordinary farm work and No. 3 for extra heavy grubbing and cleaning new land, the latter having an extra long lever and ring so that a team or force of men can be put on if necessary. The list prices, subject to a trade discount, are $4, $5 and $6.50 each.

Oatman's Handy Hoops.

Oatman Bros., Medina, Ohio, are marketing a commodity known as Oatman's handy hoops, shown herewith. The hoops, which are made for tubs, pails and

Oatman's Handy Hoops.

barrels, are put up 50 in a neat hinged cover box ready for use. The hoops are flared, and one end punched ready to get the size so that the two additional holes can be readily punched in the other end. Rivets are put up with each box for securely holding the ends. Plain hoops are put up 50 in a box as follows: No. 0, ⅝ x 39 inches; No. 1, ⅞ x 78 inches, and No. 2, 1 x 80 inches. Boxes of 25 are also packed, No. 3 being 1¼ x 80 inches and No. 4 1½ x 80 inches. Galvanized hoops are put up in four identical styles, omitting the first or smallest, the numbers reading 11 to 14 instead of 1 to 4. They also put up an assorted box of both plain and galvanized hoops, the assortment consisting of six No. 1, four No. 2 and two No. 3, which is known as No. 112, the corresponding box of galvanized hoops being No. 212, put up in the same sizes and quantities.

O. C. McGrew & Sons, Irwin, Pa., have lately moved to their own building on Main street, running back 140 feet to an alley. The building is 24 feet wide, two stories high in front and three stories in the rear. The firm were robbed of about $100 worth of goods a few weeks since and have succeeded in capturing one of the thieves, with good prospects of apprehending the other two. Some of the stolen goods have also been recovered.

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Current Hardware Prices.

MARCH 22, 1899.

NOTE.—The quotations given below represent Current Hardware Prices, whether made by manufacturers or jobbers. They apply to such quantities of goods as are usually purchased by retail Hardware merchants. Very small orders and broken packages often command higher prices, while lower prices are often given to larger buyers.

The character @ is used to indicate a range of price: thus discount 50 & 10 @ 50 & 10 & 5%, signifies that the goods in question are sold at prices ranges from 50 & 10% to 50 & 10 & 5%.

Many of the lists referred to in the following quotations are given in *The Iron Age* Standard Hardware Lists (price 50 cents). On many other articles, however, the different manufacturers have their own lists, which they will send to the trade on application. In the advertising columns will be found the announcements of manufacturers of nearly all kinds of Hardware, who will be pleased to furnish the trade information in regard to their goods and prices.

March, 1899.—In the present condition of the market many advances are being announced by manufacturers, but in some cases lower prices are made by the wholesale trade who have stocks on hand purchased at former quotations

Adjusters Blind—
Domestic, ₩ doz. $3.00...33⅓@33⅓&10%
North's.....10%
Zimmerman's—See *Fasteners, Blind.*

Window Stop—
Ives' Patent.....40%
Taplin's Perfection.....45%

Ammunition—See *Caps, Cartridges, Shells, &c.*

Anti-Rattlers—
Burton's No. 1.....₩ doz. pr., $1.00
Burton's No. 2.....₩ doz. pr., $0.75
Fernald's, Wire.....₩ doz. pr., $0.75

Anvils—American—
Eagle Anvils, ₩ ℔.....7¼@7¾¢
Hay-Budden, Wrought.....8¼@8¾¢
Horseshoe brand, Wrought.....9¼@9¾¢
Samson, ₩ ℔.....7½@8¢
Trenton, Wrought.....₩ ℔ 8¼@8¾¢

Imported—
Armitage's Mouse Hole.....8¾@9¼¢
Solid Swedish Steel.....10@10¾¢
Peter Wright's.....9¼@9¾¢

Anvil, Vise and Drill—
Millers Falls Co., $18.00.....20%

Apple Parers—See *Parers, Apple, &c.*

Augers and Bits—
Common Double Spur.....75&10@80%
Boring Machine Augers.....75&10@80%
Car Bits, 12-in. twist.60&10&10@70&10%
Jennings' Pattern Car Bits...60@60&10%
Jennings' Pattern Auger Bits.....70&10@75&5%
Adams Art Auger Bit.....30%
Cincinnati Bell Hangers' Bits.....40%
Ford's Auger and Car Bits.....40&10@40&10&10%
Forstner Pat. Auger Bits.....25%
C. E. Jennings & Co.:
No. 10 ext. lip. R. Jennings' list.....40@40&10%
No. 30. R. Jennings' List..50&10@60%
Russell Jennings'.....25&10&2½%
L'Hommedieu Car Bits15&10@15&10&5%
Pugh's Black.....20%
Pugh's ennings' Pattern.....35%
Wright's Jennings Bits (R. Jennings' list).....50%

Bit Stock Drills—
Standard List.....60&10&5@60&10&10%
Cincinnati, for metal.....50&5@50&10%
Syracuse, for wood.....40%
W. & B. Wood Boring Brace Drills...40%

Expansive Bits—
Clark's small, $18; large, $26.....50@50&10%
Lavigne's Clark's Pattern, No. 1, ₩ doz., $26; No. 2, $18.....50@50&10%
Steer's No. 1, $26; No. 2, $18...40@40&5%
Swan's.....40@40&10%

Gimlet Bits—
Common Double Cut...₩ gr. $2.75@3.25
German Pattern.....₩ gr. $5.00
Double Cut, makers' lists....50@50&10%
See also *Gimlets.*

Hollow Augers—
Bonney's Adjustable, ₩ doz.....$16.00
Cincinnati Adjustable.....25&10%
Cincinnati Standard.....25&10%
Douglass'.....33⅓@33⅓&10%
Stearns', Common, No. 6.....10%
Stearns', all other numbers.....20&10%

Ship Augers and Bits—
Ford's.....40&10@40&10&10%
L'Hommedieu's.....15&10@15&10&10%
Watrous'.....40@40&10%

Awl Hafts, See *Hafts, Awl.*

Awls—
Brad Awls:
Handled.....₩ gr. $3.00@3.45
Unhandled, Shouldered..₩ gr. 65@70¢
Unhandled, Patent .....₩ gr. 70@75¢
Peg Awls:
Unhandled, Patent .....₩ gr, 33@35¢
Unhandled, Shouldered..₩ gr. 65@70¢
Scratch Awls:
Handled, Common....₩ gr. $3.25@3.75
Handled, Socket....₩ gr. $11.00@12.00

Awl and Tool Sets—See *Sets, Awl and Tool.*

Axes—
First quality, best brands...$5.00@5.25
First quality, other brands...$4.25@4.75
Jobbers' Special Brands, good quality..$4.00@4.75
Cheap Handled Axes.....$4.75@5.25
Beveled, add 25¢ ₩ doz.

Axle Grease—See *Grease, Axle*

Axles—

	Iron.	Steel.	
Concord, loose collar....	4¾¢	4¾¢	
Concord, solid collar....	5¼¢	5 ¢	3% cash
No 1 Common.....	3¾¢	3¾¢	
No. 1½ Com., New Style.	4 ¢	3¾¢	
No. 2, Solid Collar.....	4¼¢	4 ¢	
Nos. 7, 8 11 to 14.....	60&10&5%		
Nos. 15 to 18.....	50%		
Nos. 19 to 22.....	70%		

Balances—

Sash—
Caldwell low list.....80%
Vanderbilt.....80%

Spring—
Spring Balances.....50&10@60%
No. 2000 20 30
Chatillon, ₩ doz...$0.60 .70 1.50
Chatillon Straight Balances.....50%
Chatillon Circular Balances.....60%

Barb Wire—See *Wire, Barb*

Bars— Crow—
Steel Crowbars, 10 to 40 ₰.₩ ℔ 2¼@2½¢

Beams, Scale—
Scale Beams, List Jan. 12, '82.....50&10%
Chattillon's No. 1.....40%
Chattillon's No. 2.....50&10@50&10&5%

Beaters— Egg—
New Dover (Dover Stamping Co.).
₩ doz. 75¢ ₩ gr. $7.50
Dover, Ex. Family size.....₩ doz. $2.00
New Dover.....₩ doz. 75¢; ₩ gro. $7.50
Dover (Standard Co.), No. 10, ₩ gro. $5.50; No. 5, $6.00; No. 15, $12.00
Dover (Tap in Pat. Imp.). No. 100, ₩ gro. $7.00; No. 150, ₩ doz. $2.00.
Lebanon.....₩ doz. $2.75@$3.00
Spiral.....₩ gr. $4.25@$4.50
Standard Lyon..₩ doz. $1.75; 3 doz. $5.00
Wonder (S. S. & Co.).....₩ doz. 75¢

Bellows—

Blacksmith—
Standard List.....70&10@70&10&5%
Often sold at net prices:

Inch....	30	32	34	36	38	40
Each....$3.75	4.00	4.75	5.25	6.00	7.00	

Extra Length:
Each....$4.50 5.00 5.50 6.25 7.00 8.50

Molders—

Inch ...	9	10	11	12	14	16
Per doz..$6.00	6.50	7.75	8.75	11.00	13.25	

Hand—

Inch.....	6	7	8	9	10	12
Per doz...$3.25	3.50	3.75	4.50	5.25	6.00	

Bells— Cow—
Wrought, Sheep and Cow....60&10@70%
Kentucky.....75&10%
Western.....70%
Jersey.....75&10%
Texas Star.....50&10%

Door—
Gong, Yankee.....60&10%
Lever, R. & E. Mfg. Co.'s.....60&10%
Lever and Pull, Sargent's.....70&10@75%
45&10@45&10&5%

Hand—
Hand Bells, Polished.....60&10&10@70%
White Metal.....60&10&10@70%
Nickel Plated.....50&10@60%
Swiss.....66⅔%
Silver Chime.....40@40&10%

Miscellaneous—
Farm Bells.....₩ ℔ 2¢
Steel Alloy Church and School...50&10%

Belting

Rubber—
Common Standard....75&10@75&10&5%
Extra.....70@70&10%
Standard.....70&10@75%

Leather—
Best Oak Tanned.....60&10@60&10&10%

Bench Stops—See *Stops, Bench*

Benders and Upsetters, Tire—
Brettell Tire Upsetter, $15.....5%
Green River Tire Benders and Upsetters.....20%
Stoddard's Lightning Tire Upsetters...40@50%

Bicycle Goods—
Lane's Cycle Hanger.....33⅓&5%
Joan S. Leng's Son's 1899 list:
Balls.....50%
Chain.....50%
Parts.....50%
Spokes.....50&10%

Bits—
Auger, Gimlet, Bit Stock Drills, &c.—
See *Augers and Bits.*

Bit Holders—See *Holders.*

Blind Adjusters—See *Adjusters, Blind.*

Blind Fasteners—See *Fasteners, Blind.*

Blind Staples—See *Staples, Blind.*

Blocks—
Common Jap'd Sheaves.....75@75&5%
Eddy's All steel, Common Bushed....70%
Eddy's All Steel, Bronze Bushed...60&5%
Hartz All Steel, Common Bushed.50&10%
Hartz All Steel, Bronze Bushed..50&10%
Ford's Star Brand, Self Lubricating..70%
Hollow Steel, Ford's Pat. Star Brand.....50&10%
Lane's Pat. Adj., Perfect Safety and Junior.....30%
Stowell's Novelty, Mal. Iron.....50&10%
See also *Machines, Hoisting.*

Boards Stove—
Market somewhat irregular.
Manufacturers quote.....30&10&40%
Jobbers often sell.....40&10@50%

Bolts—

Carriage, Machine, &c.—
Common, list Jan. 30, '95.....70&15@75&10%
Norway Iron, $3.00, list Oct. 7, '84.....75&10@75&10&5%
Phila. Eagle, $3.00 list.....85&15%
Bolt Ends, list Jan. 30, '95.....70&10@70&10&5%
Machine list June 12, '96.....75&10@75&10&5%

Door and Shutter—
Cast Iron Barrel, Round Brass Knob:

Inch ..	3	4	5	6	8
Per doz.....	$0.27	.50	.88	.48	.66

Cast Iron Bottom, Japanned:

Inch..	6	8	10
Per doz.....	$0.83	1.05	1.65

Cast Iron Chain, Flat, Japanned:

Inch..	6	8	10
Per doz.....	$1.10	1.32	1.87

Cast Iron Shutter, Brass Knobs:

Inch.....	6	8	10
Per doz.....	$0.49	.77	.88

Wrought Barrel Brass Knob:

Inch.....	3	4	5	6	8
Per doz.....	$0.44	.50	.61	.70	1.28

Ives' Patent Door.....65@65&10%
Wrought Flush—
B. K., Sargent's list.....50&10@60%
B. K., Stanley's list..60&10@60&10&5%
Sunk, Sargent's or Stanley's list.....50&10@50&10&5%
Wrought Shutter, Standard list 60&10&7½@70%
Wrought Square, Standard list 75@75&10%

Stove and Plow—
Plow.....70@70&10%
Stove, list August 27, 1898.....70&10%

Tire—
Common, list Feb. 28 '83.....70&10@75%
American Screw Company:
Norway Phila., list Oct. 16, '84.75&10%
Eagle Phila., list Oct. 16, '84....80&10%
Bay State, list Feb. 28, '83.....70&10%
Franklin Moore Co.:
Norway Phila., list Oct. 16, '84..75&10%
Eagle Phila., list Oct. 16, '84....80&10%
Eclipse, list Feb. 28, '83.....70&10%
Fort Chester Bolt & Nut Company
Empire, list Feb. 28, '83.....70&10%
Keystone Phila., list Oct. '84...80&10%
Norway Phila., list Oct. '84....75&10%

Borers, Tap—
Borer, Tap, Ring, with Handle:

Inch.....	1¼	1½	1¾	2
Per doz.....	$3.75	4.75	5.25	6.75
Inch.....		2¼		2½
Per doz.....		$8.00		11 00

Enterprise Mfg. Co.....25@30%
No. 1, $1.25; No. 2, $1.65; No. 3, $2.50 each.

Boring Machines—*See Machines, Boring.*

Bow Pins—See *Pins, Bow.*

Boxes, Letter—
Tatum's.....50%

Braces—
NOTE.—Most Braces are sold at net prices.
Barber's.....60@60&10%
Common Ball, American.....$1.10@1.20
Fray's Genuine Spofford's.....50&10&5%
Fray's No. 70 to 120, 81 to 123, 207 to 414.....50&10&5%
P., S. & W. Co., Peck's Patent.....60&10&5@60&10&10%

Brackets—
Shelf, plain; Regular, list....75@75&10%
Stowell's Shelf.....70&5%
Bradley Shelf Brackets.....80&10%

Bright Wire Goods—See *Wire.*

Broilers—
Wire Goods Co.....75@75&10%

Buckets, Well and Fire—See *Pails*

Bucks, Saw—
Hoosier.....₩ gr. $22.00 @ $24.00

Bull Rings—See *Rings, Bull.*

Butts— Brass—
Cast Brass, Tiebout's.....50%
Wrought Brass, list Sept., 96.....40&5@40&10%

Cast Iron—
Fast Joint, Broad.....60@60&10%
Fast Joint, Narrow...60&10@60&10&10%
Loose Joint.....
Loose Pin.....
Mayer's Hinges.....
Parliament Butts..... 75&10%

Wrought Steel—
Loose Joint.....
Table and Back Flaps..... List Apr. 1, 1895 75&10 @75&10&10%
Narrow and Broad.....
Inside Blind.....
Loose Pin.....
Loose Pin, Ball and Steeple Tip.....80&5@80&10&5%
Bronzed Wrought Narrow and Inside Blind Butts.....50&10@50&10&5%

Cages, Bird—
Hendryx, Brass:
3000, 5000, 1100 series.....10%
1200 series.....40%
200, 300, 600 and 900 series.40&10&50%
Hendryx Bronze:
700, 800 series.....40&10&50%
Hendryx Enameled.....40&10&50%

Calipers—See *Compasses.*

Calks, Toe—
Burke's, One Prong, Blunt.....4@4½¢
Burke's, One Prong, Sharp.....5@5½¢
Burke's, Two Prong, Blunt.....5@5½¢
Burke's, Two Prong, Sharp .....6@6½¢
Gautier, One Prong, Blunt.....5½@6¢

Can Openers—See *Openers, Can*

Cans, Milk—
Buffalo Pattern:

	5	8	10 gal.
Concave Cover.....	$1.35	$2.00	$2.20
Convex Cover.....	1.40	2.15	2.35
Illinois Pattern.....	....	1.80	2.00
Iowa Pattern.....	....	1.75	1.95
New York Pattern.....	....	2.25	2.45
Baltimore Pattern.....	....	2.35	2.55

Chicago S. Co. Seamless Neck.

	5	8	10 ga
Iowa.....	$1.30	$1.50	$1.65 each
Sturges....	1.30	1.50	1.65 each
Elgin.....	....	1.75	1.90 each
Chicago...	1.50	1.90	2.00 each

Cans, Oil—
Galvanized Blue Band, 1-gal., ₩ doz. $1.60@$1.80
S. S. & Co., Galvanized Family with faucet, 3-gal., ₩ gro. $54; 5-gal., $60, 10-gal., $180.00
Glass Oil.....₩ doz. $1.60@$1.85

Caps—Percussion—
Eley's E. B.....50¢
G. D.....₩ M. 32@34¢
F.....₩ M. 37@40¢
G. E.....₩ M. 47@50¢
Musket.....₩ M. 57@60¢

Primers—
Berdan Primers, $1.00.....2%
B. L. Caps (Sturtevant Shells) $1.00...2%
All other primers.....$1.00@$1.10

Carpet Stretchers—See *Stretchers, Carpets.*

Cartridges—
Note.—These prices are sometimes shaded by jobbers.
B. B. Caps, Con. Ball Swgd.....$1.00
B. B. Caps, Round Ball.....$1.12@1.18
Blank Cartridges, except 22 and 32 cal., additional 10% to above discounts.
Blank Cartridges, 22 cal. $1.75.....2%
Blank Cartridges, 32 cal., $3.50.....2%
Cent. Fire, Military and Sporting 15&5&2%
Cent. Fire, Pistol and Rifle.....25&5&2%
Primed Shells and Bullets.....15&5&2%
Rim Fire Cartridges.....50&2%
Rim Fire, Military.....15&5&2%

Carpet Sweepers—See *Sweepers, Carpet.*

Casters—
Bed Plate, etc.....50@70&5%
Martin's Patent (Phœnix)....60@60&5%
Payson's Anti-friction Furniture.....70&10&5%
Payson's Anti-Friction Truck.60&10&5%
Standard Ball Bearing.....50%
Tatum's Anti-friction.....60@60&10%
Tucker's Patent, low list.....50@50&5%

Cattle Leaders—See *Leaders, Cattle.*

Chain—
American Coil, Cask Lots:

3-16	¼	5-16	⅜	7-16	½	9-16
$6.10	4.60	3.70	2.35	3.20	3.10	3.05
⅝	¾	⅞	1 Inch.			
$3.00	2.90	2.80	2.80			

For less than Cask lots add 1-10c.
German Coil, list July 24, '97.....60&10&10@70%
German Halter Chain, list July 24, '97 60&10&10&5@70%
Trace, Wagon and Fancy Chains, list revised April, '98.....60&10&10@70%
Breast, Hitching and Rein Chains Covert Saq. Works.....70%
Covert Mfg. Co.:
Breast.....45&2%
Halter.....45&2%
Heel.....45&2%
Rein.....45&2%
Stallion.....45&2%
Jack Chain, Iron, list July 10, '93.70&10%
Jack Chain, Brass, list July 10, '93.....60@60&10%
Garland's Eureka Weldless Coil.....75%
Garland's Eureka Weldl's Halters 70&10%
Garland's Eureka Weldless Cow Ties 60%
Oneida Halter Chain.....60@60&10%
Gal. Pump Chain.....₩ ℔ 3¼@4¢

Chalk—(From Jobbers.)
Carpenters', Blue.....₩ gr. 50@52¢
Carpenters', Red.....₩ gr. 45@47¢
Carpenters', White.....₩ gr. 40@42¢
See also *Crayons.*

Chalk Lines—See *Lines.*

Checks, Door—
Bardsley's.....40%
Eclipse.....60@60&10%
Norton.....40@50%

Chisels—

Socket Framing and Firmer
Standard list.....75&10@80%
Buck Bros.....30%
Charles Buck.....30%
Douglass.....75&10@80%
L. & I. J. White.....30@30&5%

Tanged and Miscellaneous.

Buck Bros. ..... 30¢
Charles Buck ..... 30¢
Tanged Firmers ..... 40&10@50¢
L. & I. J. White, Tanged ..... 25&5¢
Cold Chisels, good quality ..... ₱ lb 14@16¢
Cold Chisels, fair quality ..... ₱ lb 12¢
Cold Chisels, ordinary ..... ₱ lb 7@7½¢

Chucks—

Beach Pat., each $8.00 ..... 20%
Graham Patent 33⅓%
Morse's Adjustable, each $7.00 ..... 25%
Syracuse, Balz Pat. 30%
Skinner Patent Chucks:
Combination Lathe Chucks 40%
Drill Chucks 30%
Independent Lathe Chucks 40%
Improved Planer Chucks 20%
Universal Lathe Chucks 40%
Union Mfg. Co.:
Combination 40%
Czar Drill 30%
Geared Scroll 33⅓%
Independent 40%
Union Drill 30%
Universal 40%
Face Plate Jaws 35%

Clamps—

Adjustable Cincinnati ..... 25&10%
Adjustable, Hammers' ..... 20@20&5%
Adjustable, Stearns' ..... 30@30&10%
Cabinet, Sargent's ..... 45&10@50&10%
Carriage Makers', P., S. & W. Co. ..... 40&10%
Carriage Makers', Sargent's ..... 50&10@50&10&5%
Besly, Parallel 33⅓%
Cincinnati Carpenters', &c. ..... 25&10%
Joiners' Clamps, Tatum's ..... 25&10%
R. I. Tool Co.'s Wrought Iron 25%
Saw Clamps, see *Vises, Saw Filers'.*
Stearns Malleable, with Wrought Iron Screw ..... 75@75&5%
Stearns Steel ..... 25&10%
Tatum's Joiners' Adjustable ..... 25&10%
Tatum's Quilt, Cabinet, &c. 40%
Warner's ..... 40&10@40&10&5%

Cleaners, Walk—

Star Socket, All Steel ..... ₱ doz. $4.00 net
Star Shank, All Steel ..... ₱ doz. $3.75 net

Cleavers, Butchers'—

Foster Bros., Flat Hds., 30%; Rd. Hds., 40%
New Haven Edge Tool Co.'s 40%
Nichols Bros., Flat hdl., 30%; Rd. hdl., 40%
Fayette R. Plumb ..... 33⅓&7½%
P., S. & W. ..... 33⅓&5@33⅓&10%
L. & I. J. White 25%

Clippers—

Chicago Flexible Shaft Company:
Handy Toilet ..... ₱ doz. $7.20
Mascotte Toilet ..... ₱ doz. $8.40
Monitor Toilet ..... ₱ doz. $9.00
Stewart's Patent ..... ₱ doz. $10.00
Hotchkiss Horse Clippers, ₱ doz.:
No. 10, $18; No. 30, $15.60; No. 22, $13.80; No. 20, $13.20; No. 8, $10.80.
Hotchkiss Toilet Clippers, ₱ doz.:
No. 1, $9.60; No. 101, $10.80; No. 201, $10.80; No. 300, $13.20; No. 500, $15.

Clips, Axle—

Eagle and Superior ¼ and 5-16 inch ..... 75@75&10%
Norway, ¼ and 5-16 inch ..... 70@70&10%

Cloth and Netting, Wire

—*See Wire, &c.*

Cocks, Brass—

Hardware list (Globe, Kerosene, Lever Bibbs, Racking, &c.) ..... 70@70&10%

Coffee Mills—See *Mills, Coffee.*

Collars, Dog—

Brass, Pope & Stevens' list 40%
Chapman Mfg. Company, new list 40%
Embossed, Gilt, Pope & Stevens' list 30&10%
Leather, Pope & Stevens' list 40%

Combs, Curry—

Hotchkiss', List Nov. 20, '96 ..... 25&10%
New York Stamping Co., List Sept. 17 '97 ..... 25&10%
New Centaur Spring Curry Comb:
With Wire Handle ..... ₱ doz. $1.20
With Strap Handle ..... ₱ doz. $1.60

Compasses, Dividers, &c.

Ordinary Goods ..... 70&10@75%
Bemis & Call Co.'s:
Dividers 65%
Calipers, Call's Patent Inside 55%
Calipers, Double 70%
Calipers, Inside or Outside 40%
Calipers, Wing 60%
Compasses ..... 50&5%
J. Stevens A. & T. Co. ..... 25&10%

Coolers, Water—

S. S. & Co.: 2-gal., $2.70; 3-gal., $3.20; 4-gal., $3.60; 6-gal., $4.75; 8-gal., $7.20; 11-gal., $11; 14-gal., $14 each 60%

Coopers' Tools—

See *Tools, Coopers'.*

Cord— Sash—

Braided, Drab and Fancy, ₱ lb 55¢ 30%
Braided, White, ₱ lb ..... 14@20%
Cable Laid Italian ..... ₱ lb A, 18¢; b, 16¢
Common India ..... ₱ lb 8½@9¢
Cotton Sash Cord ..... 14½¢
Patent Russia ..... ₱ lb 12½@13¢
Cable Laid Russia ..... ₱ lb 13½@14¢
India Hemp, Braided ..... ₱ lb 13¢
India Hemp ..... ₱ lb 9½@10¢
Patent India ..... ₱ lb 10½¢
Pearl Braided ..... ₱ lb 14¢
Massachusetts, White ..... 17¢
Eddystone Braided Cotton ..... ₱ lb 18¢
Harmony Cable Laid Italian ..... ₱ lb 18¢
Ogawan Mills:
Crown, Solid Braided White ..... ₱ lb 18¢
Braided, Giant, White ..... ₱ lb 16¢
Peerless:
Cable Laid Italian ..... 16¢
Cable Laid Russian ..... 13¢
Cable Laid India ..... 11¢
Braided India ..... 18¢
Samson:
Braided, Drab Cotton ..... ₱ lb 33@35¢
Braided, Italian Hemp ..... ₱ lb 31@33¢
Braided, Linen ..... ₱ lb 53@56¢
Braided, White Cotton ..... ₱ lb 27@30¢
Silver Lake:
A quality, Drab, 40¢ ..... 15&7½%
A quality, White, 35¢ ..... 15&7½%
B quality, Drab, 35¢ ..... 15&7½%
B quality, White, 30¢ ..... 15&7½%
Italian Hemp, 40¢ ..... 15&7½%
Linen, 57½¢ ..... 15&7½%

Wire, Picture—

Braided or Twisted ..... 85@85&5%

Corn Knives and Cutters

—See *Knives, Corn.*

Crackers, Nut—

Acme, Japanned, ₱ gr. $30 ..... 40%
Acme, Nickel Plated, ₱ gr. $30 ..... 20%
Turner & Seymour Mfg. Co. 50%

Cradles—

Grain 55%

Crayons—

White Round Crayons, ₱ gross ..... 5@6¢
Cases, 100 gr., $4.50@$5.00, at factory.
D. M. Steward Mfg. Co.:
Metal Workers', ₱ gr. $2.50 ..... 20@25%
Railroad, ₱ gr. $2.00 ..... 20@25%
Rolling Mill, ₱ gr. $2.50 ..... 20@25%
Soapstone Pencils, ₱ gr. $1.50 ..... 20@25%
See also *Chalk.*

Creamery Pails—See *Pails, Creamery.*

Crooks, Shepherds'—

Fort Madison, Heavy ..... ₱ doz. $7.00
Fort Madison, Light ..... ₱ doz. $6.50

Crow Bars—See *Bars, Crow.*

Cultivators—

Victor Garden ..... ₱ doz. $10.00

Curry Combs—

See *Combs, Curry.*

Cutters— Meat—

American					30%
Nos.	1	3	4	8	5
Each	$5	$7	$10	$25	$50 $60

Connecticut, No. 0, $2.00; No. 1, $2.50; No. 8, $3.00; No. 12, $3.50 33⅓%
Enterprise ..... 25@25&7½%

Nos.	5	10	12	22	32
Each	$2	$3	$2.50	$4	$6

Dixon's, ₱ doz. $3½%

Nos.	1	2	3	4
	$14.00	$17.00	$19.00	$30.00

Hale's, ₱ doz. ..... 70@70&5%

Nos.	11	12	13
	$27.00	$33.00	$45.00

New Triumph No. 605, ₱ doz. $24.00 ..... 33⅓&5%
Woodruff's, ₱ doz 33⅓%

Nos.	100	150
	$15.00	$18.00

Chadborn's Smoked Beef Cutter, ₱ doz. $60.00
Enterprise Beef Shavers ..... 25@30%

Slaw and Kraut—

Henry Disston & Sons:
Slaw, Corn Grater, &c. 40%
Crout Cutters 24 x 7, 26 x 8, 30 x 9 ..... 55%
Crout Cutters 36 x 12, 40 x 12 ..... 40%
Tucker & Dorsey Mfg. Co.:
Kraut Cutters ..... 50@50&10%
Slaw Cutters, 1 Knife, ₱ gr. ..... $15@$18
Slaw Cutters, 2 Knife, ₱ gr. ..... $20@$27

Tobacco—

All Iron, Cheap ..... ₱ doz. $4.50@5.00
Enterprise ..... 25&30%
National, ₱ doz. $21.00 ..... 30&5%
Sargent's, ₱ doz. $24.00 ..... 60@60&10%

Washer—

Appleton's, ₱ doz. $16.00 ..... 60&10@60&10&10%
Bonney's ..... ₱ doz. $4.25
Cincinnati ..... 25&10%
Tatum's ..... 25&10%

Diggers, Post Hole, &c.—

Gem, Improved ..... ₱ doz. $8.50@$9.00
Iwan's Improved Post Hole Auger. 40&5%
Iwan's Perfection Post Hole Digger ..... ₱ doz. $10.00
Samson, ₱ doz. $34.00 ..... 25%
Vaughan's Post Hole Auger. ₱ doz. ..... 5.25@5.75

Dividers—See *Compasses.*

Dog Collars—See *Collars, Dog.*

Door Checks—

See *Checks, Door.*

Door Springs—

See *Springs, Door.*

Drawers, Money—

Tucker' Pat. Alarm Till No. 1, ₱ doz. $18; No. 2, $12; No. 3, $11; No. 4, $12.

Drawing Knives—

See *Knives, Drawing.*

Drills and Drill Stocks—

Common Blacksmith's Drill .. each $1.50
Bench Drills, Stearns' ..... 50@50&10%
Blacksmiths' Self-feeding, each $7.50. 20%
Breast, Millers Falls, each $3.00 ..... 25%
Breast, P., S. & W. ..... 40&10%
Goodell Automatic Drills .. 40&5@40&10%
Ratchet, Bignall & Keeler ..... 30&5%
Ratchet, Curtis & Curtis 25%
Ratchet, Ingersoll's 25%
Ratchet, Parker's 40%
Ratchet, Weston's ..... 30@25%
Ratchet, Whitney's ..... 40&10%
Whitney's Hand Drill, No. 1, $10.00: Adjustable, No. 10, $12.00 ..... $3⅓%

Twist Drills—

Standard List ..... 60&10&5@60&10&10%

Drill Bits or Bit Stock

Drills—See *Augers and Bits.*

Drill Chucks—See *Chucks.*

Dripping Pans—

See *Pans, Dripping.*

Drivers, Screw—

Balsey's Screw Holder and Driver, ₱ doz. 2¼-inch, $6; 4-in., $7.50 6-in., $9 .. 40%
Brace Screw Drivers ..... 25&10&5%
Buck Bros. 30%
Buck Bros' Screw Driver Bits 27½%
Champion ..... 40&10%
Disston's Flat Blade, Electric, &c. 70%
Douglass Mfg. Co. ..... 20@20&10%
Electric Spiral ..... 50&10&10&5%
Ellrich's Socket ..... 40&10%
Fray's Hol. H'dle Sets, No. 8, $12.00 50%
Gay & Parsons' Ratchet 35%
Goodell's Automatic ..... 50&10&10@50&10&10&5%
Hercules, W. & B. ..... 70@75%
Howard-Allard Spiral ..... 50&10&10&5%
Jones Reversible 50%
Knapp & Cowles:
Nos. 1 and 2 ..... 70&10%
No. 3 ..... 60&10%
Nos. 4 and 00, Acme and Ideal .. 60&10%
Mayhew's Black Handle 50%
Mayhew's Monarch ..... 45&10%
New England Specialty Co. ..... 50&10%
New York, Manhattan and Handy .. 20%
Sargent & Co.'s:
Nos. 1, 20, 40 and 60. 50&10@50&10&5%
Nos. 50 and 55 ..... 50&10&10@60&5%
Screw Driver Bits ..... ₱ doz. 50@70¢
Stanley's R. & L. Co.'s:
No. 64, Varnished Handles ..... 70&10%
No. 86 ..... 75&10%
Syracuse Screw Driver Bits 40%

Egg Beaters—See *Beaters, Egg.*

Emery—No. 4 to No. 54 to Flour, CF

	46 gr.	1.80 gr.	F.FF.
Kegs, ₱ lb	4½¢	5 ¢	3 ¢
½ kegs, ₱ lb	4½¢	5½¢	3½¢
¼ kegs, ₱ lb	5 ¢	5½¢	3½¢
10-lb cans, 10 in case	6 ¢	6½¢	5½¢
10 lb cans, less than 10	10 ¢	10¢	8 ¢

Enameled and Tinned Ware—See *Ware, Hollow.*

Escutcheon Pins—

See *Pins, Escutcheon.*

Extractors, Lemon Juice

—See *Squeezers, Lemon.*

Fasteners, Blind—

Zimmerman's ..... 50&10%

Faucets—

B. & L. B. Co.:
West's Lock, Open and Shut Key 50&10%
Burnside's Red Cedar 50%
Burnside's Red Cedar, bbl. lots .. 50&10%
Cork Lined ..... 70&5@70&10%
Metallic Key, Leather Lined .. 65&10@65&10&10%
John Sommer's Peerless Tin Key 40%
John Sommer's Boss Tin Key 50%
John Sommer's No Brand Metal Key .. 60%
John Sommer's W. P. Metal Key 40%
John Sommer's Diamond Lock 40%
John Sommer's I. X. L. Cork Lined .. 50%
John Sommer's Reliable Cork Lined .. 60%
John Sommer's Common Cork Lined .. 70%
John Sommer's Chicago Cork Lined .. 60%
John Sommer's O. K. Cork Lined 50%
John Sommer's Perfection Cedar 40%
John Sommer's Cedar (in bbls.) .. 50&10%
Star ..... 60@60&5%
Star, Metal Plug, new list ..... 40@40&5%
Stearns' Wood, No. 200, Wood-lined Key ..... 50&10%
Stearns' Matchless, Wood, No. 300 .. 60%
Stearns' Gem, Wood, No. 400 .... 60&10%
Lockport, Metal Plug, reduced list. 60&5%
Self Measuring:
Enterprise, ₱ doz. $36.00 ..... 40%
Lane's, ₱ doz. $36.00 ..... 33⅓%
National Measuring, ₱ doz. $36.00. 33⅓%

Felloe Plates—

See *Plates, Felloe.*

Fifth Wheels—

Brewster ..... 75&10@80%
Derby and Cincinnati ..... 70&10@75%

Files—Domestic—

Best Brands ..... 70@70&10&10%
Good Brands ..... 75&10@80&5%
Fair Brands ..... 80&10@80&10%
Second Quality ..... 50&10@55%

Imported—

Stubs' Tapers Stubs' list, July 24, '97. 30@33⅓%

Fixtures, Grindstone—

Net prices:

In use	15	17	19	21	24
Per doz.	$2.50	2.50	2.75	3.25	4.50

Stowell's Grant Grindstone Hanger ..... ₱ doz. $6.00@7.00
Stowell's Grindstone Fixtures .... 55&10%
P., S. & W. Co. ..... 50&10&10%
Reading Hardware Co. ..... 30&20&10%
Sargent's Patent ..... 70&10@70&10&10%

Fluting Machines—

See *Machines, Fluting.*

Fodder Squeezers—

See *Squeezers, Fodder.*

Forks—

Note.—There is no uniformity in list prices for Steel Goods, the old or 1895 list being often used, discount 60&10@60&10&5%.

Hay, 2 tine	70&2%
Hay, 3 tine	70&2%
Manure, 4 tine	66⅔&20&2%
Manure, 5 and 6 tine	70&10&2%
Spading	70&15&2%
Victor, Hay	60&33⅓&2½&2%
Victor, Manure	75&5&2%
Victor, Header	70&12½&2%
Champion, Hay	70&10&2%
Champion, Manure	75&2%
Columbia, Hay	70&7½&2%
Columbia, Manure	75&5&2%
Columbia, Spading	66⅔&25&2%

Hawkeye Wood Barley 4 tine ₱ doz $5.00; 6 tine, $5.50.
Plated see *Spoons.*

See Trade Report.

Frames—

Saw—

Red, Polished and Varnished ..... ₱ doz. $1.00@$1.10
White ..... ₱ gro. $8.25@$8.50

Screens, Window and Door—

Bonanza Window Screens ..... 60@60&5%
Flyer Window Screens ..... 50&10&5%
Maine Window Screen Frames 50%
Perfection Window Screens .. 60&40&5%
Phillips' Window Screen Frames .. 60&5%
Porter's Extension Window Screens .. 60&5%
Stearns' Frames and Corners 25@25&10%
Stearns' Monarch Adjustable Window Screens 50%
Stearns' Gem Window Screen Frames, 25&10%
Wabash Adj. Window Screen 50%
Warner's Screen Corner Irons .. 33⅓&10%

Freezers Ice Cream—

Qts.	2	3	4	6	8	10
Best	$1.40	1.60	1.85	2.30	3.00	3.90
Good	1.30	1.40	1.70	2.10	2.70	3.50
Fair	1 10	1.20	1.40	1.85	2.40	3.00

Fruit and Jelly Presses—

See *Presses, Fruit and Jelly.*

Fry Pans—See *Pans, Fry.*

Funnels—

Gersdorff's Perfection, Standard and Globe; 1 to 3 gro., 10&5%; 3 to 5 gro., 20&5%.

Fuse—

Per 1000 feet.

Hemp Fuse	$2.60
Cotton Fuse	2.90
Single Taped Fuse	3.50
Double Taped Fuse	4.70
Triple Taped Fuse	5.70

10%

Gates, Molasses—

Stearns' Molasses and Oil ..... 30&10%
Stebbin's ..... 80&20@85%

Gauges—

Barrett's Comb. Roller Gauge ..... ₱ doz. $6.75@7.25
Marking, Mortise, &c. 60&10@60&10&10%
Stanley R. & L. Co.'s Butt & Rabbet Gauge ..... 25&10%
Wire, Brown & Sharpe's 25%
Wire, Morse's 25%
Wire, P., S. & W. Co. ..... 10&10%
Wire, Wheeler, Madden & Co. 10%

Gimlets—

Nail, Metal, Assorted ..... ₱ gr. $2.30
Spike, Metal, Assorted ..... ₱ gr. $4.00
Nail, Wood Handled, Assr'd. ₱ gr. $4.30
Spike, Wood Handled, Assr't'd. ₱ gr. $4.90

Glue—

Le Page's Liquid, List A, 37½%; List B, 33⅓%; List C, 25%

Glue Pots—See *Pots, Glue.*

Grease, Axle—

Allerton's Axle:
1 lb Tins, ₱ gr. $9.00
3 lb Tin Pails, ₱ doz., $2.90; 5 lb, $3.00; 10 lb, $6.00.
25 lb wood pails ..... ₱ doz. $12.00
Dixon's Everlasting .... 10-lb pails, ea. 85¢
Dixon's Everlasting, in bxs. ₱ doz. 1 lb $1.20; 2 lb $2.00
Lower grades, special brands, ₱ gr. $5.00@6.50

Grindstone Fixtures—

See *Fixtures, Grindstone.*

Gun Powder—See *Powder.*

Hack Saws—See *Saws.*

Hafts, Awl—

Peg Patent, Leather Top ..... ₱ gr. $4.90
Peg Patent, Plain Top ..... ₱ gr. $3.45
Sewing, Brass Ferrule ..... ₱ gr. $1.50
Saddlers', Brass Ferrule ..... ₱ gr. $1.35
Peg, Common ..... ₱ gr. $1.25
Brad, Common ..... ₱ gr. $1.85

Halters and Ties—

Covert Mfg. Co., Web and Rope ... 45&2%
Covert's Saddlery Works, 96 list 70%

Hammers—

Handled Hammers—

Heller's Machinists' ..... 40@40&5%
Magnetic Tack, Nos. 1, 2, 3, $1.25, $1.50, $1.75 ..... 40&10%
Peck, Stow & Wilcox ..... 40@40&5%
Fayette R. Plumb:
Artisans' Choice, A. E. Nail ... 40&12½%
Engineers' and B. S. Hand 60%
Machinists' Hammers 60%
A. E. & A. E., Bell Face Nail ... 40&12½%
Other Nail Hammers 50%
Sargent's C. S. New List ..... 45@50%

Heavy Hammers and Sledges—

3 ℔ and under.....℔ ℔ 45¢
3 to 5 ℔.....℔ ℔ 36¢ } 80&10@80
Over 5 ℔.....℔ ℔ 30¢ } &10&5%
Wilkinson's Smiths'.....9½¢@10¢ ℔ ℔

Handcuffs and Leg Irons

See *Police Goods.*

Handles—

Cross-Cut Saw Handles—

Atkins'.....40%
Champion.....45@45&10%
Disston'.....50%
Ely's Perfection.....℔ doz. $3.00

Iron, Wrought or Cast—

Barn Door, ℔ doz. $1.40.....20&5%
Bronze Iron Drop Latches.....℔ doz. 60¢
Chest, Sargent's list..50&10@50&10&10%
Door or Thumb:

Nos.	0	1	2	3	4
℔ doz.	$0.90	1.00	1.08	1.35	1.50

60&10&10@70%

Jap'd Store Door Handles—Nuts, $1.62; Plate, $1.10; no plate, $0.88.....10%
Roggin's Latches.....℔ doz. 28¢@30¢

Wood—

Auger, assorted.....℔ gr. $2.25@$2.50
Auger, large.....℔ gr. $2.75@$3.00
File, assorted.....℔ gr. $1.25@$1.40
Brad Awl.....℔ gr. $1.75@$2.00
Apple Firmer Chisel, ass'd ℔ gr. 2.25@2.50
Apple Firmer Chisel, large ℔ gr. 2.75@3.00
Hickory Firmer Chisel, ass'd ℔ gr. $2.25@2.50
Hickory Firmer Chisel, large ℔ gr. $2.50@2.75
Socket Firmer Chisel, ass'd ℔ gr. 1.25@1.50
Socket Framing Chisel ass'd ℔ gr. 2.50@2.75
Hammer, Hatchet, Axe, &c.....50&10%
Hoe, Rake and Fork.. 60&10@60&10&5%
Shovel and Spade, Wood D H'dle..60&10%
Hand Saw, Varnished, ℔ doz. 75@80¢; not Varnished.....55@60¢
Plane Handles:
Jack, ℔ doz. 23@25¢; Jack Bolted.... 55@60¢
Fore, ℔ doz. 35@38¢; Fore, Bolted... 70@75¢

Hangers—

Barn Door, New Pattern, Round Groove, Regular:

Inch.....	3	4	5	6	8
℔ doz....	$1.28	1.68	2.16	2.64	3.30

Barn Door, New England Pattern, Check Back, Round Groove, Regular:

Inch.....	3	4	5	6
℔ doz.....	$2.86	3.74	4.84	6.16

Bigelow & Dowse Co.:
Paragon, No. 1, $3.50; No. 2, $4.50; No. 3, $5.50 ℔ doz.
Chicago Spring Butt Co.:
Friction.....35@35&10%
Oscillating.....35@35&10%
Big Twin.....35@35&10%
Chisholm & Moore Mfg. Co.:
Advance.....60&10%
Cleveland.....60&10%
Baggage Car Door.....50%
Elevator.....40%
Railroad.....55%
Cronk Hanger Co.:
Roller Bearing.....70%
Steel Covered.....60&10%
Lane Bros.:
Parlor, Standard.....40&10%
Barn Door, Standard.....60&10%
Covered.....60&10%
Cycle, ℔ doz. $12.00.....33⅓&5%
No. 50.....60&5%
Parlor Door, New Model.....40&5%
Lawrence Bros:
Crown.....60&10%
New York.....60&10@60&10&5%
Sterling.....60&10%
McKinney Mfg. Co:
No. 2, Standard, $18.....60&10%
No. 1, Special, $13.....60&10%
Payson Mfg. Co.:
Pendulum, No. 533.....$2.40
E. C. Stearns & Co.:
Davis Parlor Door.....50@50&5%
Gem Parlor Sliding Door....50&10%
Challenge.....50@50&5%
Steel Single Track Parlor, $6....50%
Royal Parlor Door.....50%
Warner's Pat.....20&10&10%
Warner's Imp'd Single.....40&10%
Stowell Mfg. and Foundry Co.:
Badger.....60&10%
Baggage Car Door.....33⅓%
Climax Anti-Friction.....55&5%
Elevator.....40%
Interstate.....60&15%
Magic.....50&10%
Matchless.....60&10%
Nansen.....60&10%
Parlor Door.....50&10%
Railroad.....55&5%
Street Car Door.....50&10%
Steel, Nos. 300, 400, 500.....45& 5%
Wild West.....50&5%
Zenith for Wood Track.....55&5%
Taylor & Boggis Foundry Co.:
Kidder's.....50@50&10%
Terry Mfg. Co.:
Ideal.....70%
Modern.....70%
Modern, Covered.....70%
Safety.....70%
Shield.....70%
Solid.....70%
Wrought.....70%
Van Wagoner & Williams Hdw Co.
American Trackless.....33⅓&10%
Wilcox Mfg. Co.:
Aurora Steel Endless.....60%
Bike Roller Bearing....60&10&10%
Bike Steel Endless.....60&10&10%
C. J. Roller Bearing....60&10&10%
Cycle Ball Bearing.....50&10%
Dye Steel.....60&10%
Economical Single Track.50&10&5%
L. T. Roller Bearing.....70%
New Era.....50&10%
New Richards.....60%
O. K. Roller Bearing.....70%
Prindle Improved.....60&10%
Richards' Improved.....60&10%
Richards' Single Track.....50&10%
Wilcox Dwarf Roller Bearing.... 40&10%
Wilcox-Ives.....60&10%
Wilcox Tandem Roller Bearing.. 60&10%
Wilcox Trolley Ball Bearing..... 40&10%
Wilcox Trolley Roller Bearing..50%
Wilcox Trolley Roller Bearing, Fire.....40&10%
Wood Track.....60%

Harness Menders—See *Menders.*

Harness Snaps—See *Snaps.*

Hasps—

McKinney's Perfect Hasp, ℔ doz. $1.10 40&10%
Wrought Hasps, Staples, &c.—See *Wrought Goods.*

Hatchets—

Blood's, Hunt's, Plumb's, Underhill's, etc.....40&12½@50&5%
Cheaper Brands.....50&10&60%

Hay and Straw Knives—

See *Knives.*

Hinges—

Blind Hinges—

Clark Mfg. Co.:
No. 1 Blind Hinge, Old Pattern, "Special".....80&10&5%
No. 1 Blind Hinge, "Diamond" (with tip).....80&10&5%
No. 1 Blind Hinge "Cottage" (with tip).....50&10&10%
Nos. 1, 3, 5 Blind Hinges, regular 1668 old Pattern.....80&10%
Nos. 1, 3, 5 Blind Hinges, "Victor" (with double tip).....80&10%
No. 50 Blind Hinge, both "Noiseless" and "Empire".....80%
No. 40—60—65 Blind.....80%
Lull & Porter Old Style Shutter.80&10%
Dixie, L. & P. Shutter.....80&10%
Buffalo Reversible Shutter.....80&10%
Mortise Gravity Blind.....50%
Huffer.....50&10&10@60%
Parker.....75&10@75&10&5%
North's Automatic Blind Fixtures, No. 2, for Wood, $9.00; No. 3, for Brick, $11.50.....10%
Reading's Gravity.....75&10%
Sargent's, Nos. 1, 3, 5, 11, 13..75@75&10%
Wrightsville H'dware Co.:
Acme, Lull & Porter.....80&10%
Buffalo Gravity Locking, Nos. 1, 3 and 5.....80&10&5%
Champion Gravity Locking, No. 75.....80&10&10%
1868, Old Pat'n, Nos. 1, 3 & 5...80&10%
Tip Pattern, Nos. 1, 3 and 5...80&10&5%
Double Locking, Nos. 20 and 25....75%
Empire, Nos. 101 and 103.....80%
Niagara Gravity Locking, Nos. 1, 3 and 5.....80&10%
Noiseless, Nos. 50, 60, 65 and 55....80%
O. S. Lull & Porter.....80&10&5%
Pioneer, Nos. 060, 45 and 5½....75&5%
Steamboat Gravity Locking, No. 10.....80&10&5%
Stanley's Steel Gravity Blind Hinges, ℔ doz. sets $1.30.....40&10%

Gate Hinges—

Reversible Self-Closing, with Latch.. ℔ doz. $1 70@1 75
Western, with Latch..℔ doz. $1.25@1 35
New England, with Latch.. ℔ doz $1.45@1.50
Reversible Self-Closing, without Latch ℔ doz. $1.30@1.35
Western, without Latch.. ℔ doz. $0.75@0.78
New England, without Latch.. ℔ doz. $1.00@1.05

Spring Hinges—

Extra 5@10% often given.

J. Bardsley:
Bardsley's Patent Checking.....15%
Bommer Bros.:
Bommer's.....40%
Chicago Spring Butt Co.:
Chicago.....30%
Garden City Engine House..30%
Keene's Saloon Door.....30%
Lawson Mf'g. Co.:
Machine.....25%
Matchless Pivot.....40%
Payson Mfg. Co.:
Oblique, Dbl. Acting.....50@50&5%
E. C. Stearns & Co.:
Nos 45 and 51.....70%
Stover Mfg. Co.:
Ideal, No. 16, Detachable, ℔ gr. $ 2.50
Ideal, No. 4.....℔ gr. $9.00
New Idea No. 1.....℔ gr. $9.00
New Idea, Double Acting.....45%
Van Wagoner & Williams Hdw. Co.:
Acme.....80&5%
American.....30%
Columbia, No. 14.....℔ gr. $8.00
Columbia, No. 18.....℔ gr. $24.00
Crown.....30%
Gem.....30%
Knoxall.....℔ gr. $9.00
Oxford.....30%

Extra 10% often given on most of these Hinges.

Wrought Iron Hinges—

Strap and T Hinges, &c., list Mar. 15, 1893:
Light Strap Hinges..75, 10&5%
Heavy Strap Hinges...80&10%
Light T Hinges.....70%
Heavy T Hinges.....75&5%
Extra Heavy T Hinges.....80%
Extra 20@25%
Plate Hinges, Providence { 6 to 12 in. ℔ ℔ 5¢ / 14 to 36 in. ℔ ℔ 4¢
Rolled Blind Hinges, Nos. 32 and 34 50&10@50&10&5%
Rolled Plate.....70&10@70&10&5%
Screw Hook and Strap { 6 to 12 in...℔ ℔ 2½@2½¢ / 14 to 20 in...℔ ℔ 2 @2½¢ / 22 to 36 in...℔ ℔ 1¾@2 ¢
Screw Hook and Eye:
¾ to 1 in. diam.....℔ ℔ 4½@4½¢
⅞ in. diam.....℔ ℔ 5½@5½¢
⅞ in. diam.....℔ ℔ 7½@7½¢

Hoes—

Eye—

D. & H. Scovil.....35@35&5%
Scovil and Oval Pattern.....60@60&10%
Grub, list Feb. 23, 1899.....70&10@75%

Handled—

Often sold from 1895 or old list:
Planter's, Cotton, Field & ...60&10&5%
Field and Garden.....60&40&5&2%
Ladies', Boys', Toy and Onion75&12½&2%
Street and Mortar.....75&15&2%
Cotton.....75&10&2½&2%
Planters'.....75&10&5&2%
Weeding.....75&10&5&2%
Ft. Madison Crucible Garden Hoe..... 75&10&2%
Ft. Madison Crescent Cultivator Hoe, per doz.....$3.75
Ft. Madison Mattock Hoe, ℔ doz....$4.00
Ft. Madison Sprouting Hoe, ℔ doz..$4.50
Ft. Madison Dixie Tobacco Hoe..... 75&10&2%
Kretsinger's Cut Easy, per doz.....$4.50
Warren Hoe.....60&10%

Hog Rings and Ringers—

See *Rings and Ringers.*

Hoisting Apparatus—

See *Machines, Hoisting.*

Hollow Ware—

See *Ware, Hollow.*

Holders—Bag—

Sensible Bag and Twine.....50%

Bit—

Angular, ℔ doz. $24.00..... 75&10%
Extension.
Barber's, ℔ doz. $15.00..... 45&10%

File and Tool—

Nicholson File Holders and File Handles..... 33⅓%

Hooks—

Cast Iron—

Bird Cage, Reading..... } 60&10&10@
Bird Cage, Sargent's List. } 70%
Clothes Line, Sargent's List.....50&10%
Ceiling, Sargent's List.....50&10%
Clothes Line, Stowell's..... 70&5%
Clothes Line, Reading List 65&10@65&10&10%
Coat and Hat, Stowell's..... 70&5%
Coat and Hat, Reading 60&10@60&10&10%
Coat and Hat, Sargent's List.....50&10%
Coat and Hat, Wrightsville list..70&10%
Harness, Reading List.....70&10@75%

Wire—

Atlas, Coat and Hat.....50@50&10%
Belt.....80&10@80&20%
Buffalo Belt Fasteners.....40%
Wire Coat and Hat:
Acme.....60@60&5%
B. B.....70@70&5%
Gem.....66⅔%
Bright Wire Goods—See *Wire.*

Wrought Iron—

Box, or Case, Octagon Steel.. ℔ doz. $2.00@2.15
Cotton.....℔ doz. $1.00@1.10
Picture, T. & S. Mfg. Co.....75%
Tassel, T. & S. Mfg. Co.....50&10%
Wrought Staples, Hooks, &c.— See *Wrought Goods.*

Miscellaneous—

Bush, Light, ℔ doz. $5.00; Medium, $5.50; Heavy, $6.00
Covert Saddlery Works' Self Locking Gate and Door Hook, 4 in. ℔ gross $13.00; 6 in. $17.20.....70%
Crown Picture.....60%
Fish Hooks, American.....60@60&10%
Grass, No. 2, $1.65; No. 3, $1.80; No. 4.....$2.00
Potato and Manure.....75&15%
Hooks and Eyes—Brass.....70&10@75%
Hooks and Eyes—Malleable Iron..75&10%
Whiffletree, ℔ ℔.....4¾¢
Bench Hooks—See *Bench Stops.*
Corn Hooks—*See Knives, Corn.*

Horse Nails—See *Nails, Horse.*

Horseshoes—

See *Shoes, Horse.*

Hose, Rubber—

Garden Hose, ¾-inch:
Competition.....℔ ft. 4@4½¢
3-ply Standard.....℔ ft. 5½¢
4-ply Standard.....℔ ft. 6½¢
3-ply extra.....℔ ft. 6½¢
4-ply extra.....℔ ft. 7½¢
High Grade.....℔ ft. 8½@9½¢
Cotton Garden, ¾ in., coupled:
Fair quality.....℔ ft. 7¢
Good quality.....℔ ft. 8¢

Irons—

Sad—

From 4 to 10.....℔ ℔ 2@2½¢
B. B. Sad Irons.....℔ ℔ 2½@2¾¢
Chinese Laundry.....℔ ℔ 3½@4¢
Chinese Sad.....℔ ℔ 3@3½¢
Crown Improved, Pol., ℔ doz. $6.50; Nickel, $7.00
Troy Pol. Irons.....℔ doz. $3.00
Mrs. Potts', per set:

No.	50	55	60	65
℔	56¢	57@60¢	71@74¢	67@70¢

New England Pressing.....℔ ℔ 2½@3¢
Sensible Sad Irons, Pol., ℔ doz. $6.50; Nickel, $7.00.

Soldering—

Soldering Coppers.....℔ ℔ 21@25¢
Covert Mfg. Co..... 35&2%

Pinking—

Pinking Irons.....℔ doz. 55@60¢

Jack Screws—See *Screws.*

Jacks, Wagon—

Covert Mfg. Co., Steel.....45&2%
Daisy, ℔ doz. $12.00.....70%
Lockport.....40@40&10%
Victor, ℔ doz. $20.00.....70%
Lane's Steel.....30%

Kettles—

Brass, Spun, Plain, list Jan. 10, '99. 15@20%
Enameled and Tea—See *Ware, Hollow.*

Knife Sharpeners—

See *Sharpeners, Knife.*

Knives—

Butcher, Shoe, &c.—

Dick's Butcher Knives.....40%
Foster Bros.' Butcher, &c.....40%
Nichols' Butcher Knives.....50%
Table and Pocket Cutlery and John Wilson's Butcher Knives—Net prices.
Hay and Straw—See *Hay Knives.*

Corn—

Ft. Madison Cut-Easy, ℔ doz.....$3.25

Drawing—

Standard list.....75&10@80%
Adjustable Handle.....25@.03½%
Bradley's.....35%
Douglass.....75@75&10%
Watrous.....30&10@40%
L. & I. J. White.....20&5@25%
Cautelo's Folding.....50@50&5%

Hay and Straw—

Blizzard.....$5.50@6.00
Iwan's Sickle Edge.....℔ doz. $10.50
Lightning, from Jobbers.....$5.00@6.00

Mincing—

Buffalo Adjustable, ℔ doz. $3.00.....40%
Knapp & Cowles.....60%
Smith's, ℔ doz., Single, $2; Double, $3 45@50%
Sensible, Nos. 10, 20, 40 and 60.. ....

Miscellaneous—

Farriers'..... ℔ doz. $2.00@3.00

Knobs—

Base, 2¼-in., Birch, Rubber tip, ℔ gro. $1.25@1.40
Bardsley's Wood Door, Shutter, &c...15%
Carriage, Jap., ℔ gr. 80¢.....60&10%
Door, Mineral.....℔ doz. 60@62¢
Door, Por. Jap'd.....℔ doz. 65@67¢
Door, Por. Nickel.....℔ doz. $1.70@1.80
Drawer, Porcelain....60&10@60&10&10%
Picture, Sargent's.....70&10%
Shutter, Porcelain.....70@70&10%
Yale & Towne Wood, list Dec., '85....40%

Ladles—Melting—

P., S. & W.....35&10@40%
Reading.....50&10%
Sargent's.....60@60&10%

Lanterns—Tubular—

	℔ doz.	
Regular Tubular	$7.00	40&5@40&
Side Lift Tubular	$7.50	10&5%
Square Lift Tubular	$7.50	

Bull's Eye Police—

2¾-inch flash light.....℔ doz. $4.00
3-inch flash light.....℔ doz. $4.50
2¾-inch regular.....℔ doz. $3.60
3-inch regular.....℔ doz. $3.90

Lawn Mowers—

See *Mowers, Lawn.*

Leaders, Cattle—

Covert Mfg. Co.....45&2%
Peck, Stow & W. Co.....66⅔%
Sargent's.....70&10@70&10&10%

Lemon Squeezers—

See *Squeezers, Lemon.*

Lifters, Transom—

Excelsior.....60@60&10%
Payson's:
Solid Grip Nos. 303 and 304, ℔ 100 $11.00
Other sizes.....70&10%
Shaw's.....60@60&10%

Lines—

Ossawan Mills.
Crown Solid Braided Chalk..... 33⅓%
Mason's, No. 0 to No. 5..... 33⅓%
Silver Lake Braided Chalk, No. 0, $6.00; No. 1, $6.50; No. 2, $7.00; No. 3, $7.50 ℔ gr.....30%

Wire Clothes...Nos....	18	19	20
100 feet.....	$2.40	2.15	1.90
75 feet.....			$1.35

Locks, &c.—Cabinet—

Cabinet Locks..... 33⅓&2%

Door Locks, Latches, &c.—

[Net prices are very often made on these goods.]

Plate.....33⅓%
Reading.....60@60&10%
R. & E. Mfg. Co.....60&10@70%
Sargent & Co.....60&10@60&10&10%
S. B. & Co., Locks, Knobs, &c.40@40&5%

Elevator—

Stowell's.....33⅓%

Padlocks—

Wrought Iron, list Dec. 3, '97.75&10@80%
Dog Collar, S. B. Co.....40%

E. T. Fraim:
Cast Iron, Scandinavian.....90&40%
Mal. Iron, 120 line.....90&10%
Mal. Iron, 110 and 125 line.....65%
All others.....50&5%
Scandinavian.....90&40@90&40&10%
S. B. & Co.....40%

Sash, &c.—

Fitch's Patent.....65&10%
Ives' Patent.....65@65&10%
Payson's Perfect.....70%
Payson's Signal.....70&10%
Reading.....60&10&10@70%

Machines—

Boring—

	Without Augers. Upright.	Angular.
Boss, Carpenters'.	$3.50	
Boss, Ship Bldrs'..	3.75	
Douglas	2.50	$3.00
Jennings'	2.50	3.00
Millers' Falls		5.75
Snell's, Rice's Pat.	2.50	2.75

Fluting—

Crown Jewel, 6 in.....$2.50@2.75

Hoisting—

Moore's Anti-Friction Differential Pulley Block.....30%
Moore's Hand Hoist, with Lock Brake.20%
Maris & Beckley (Teal Patent).....30%
See also *Blocks.*

Washing—

Wayne American, No. 2, ₱ doz. $27.50
Western Star, No. 2, ₱ doz. 27.50
Western Star, No. 3, ₱ doz. 30.00
St. Louis, No. 41, ₱ doz. 68.00
} Carload lots 10% off, freight allowed.

Mallets—

Hickory.....50@50&10%
Lignumvitæ.....50@50&10%
Tinners', Hickory and Applewood, ₱ doz....55@60¢
Fiber Head, Stearns'.....25%

Mattocks—

List Feb. 23, 1899.....70&10@75%

Measures—

Peck and Half Peck, See *Ware, Stand- and Fiber.*

Meat Cutters—

See *Cutters, Meat.*

Menders—

Centaur Harness Menders, ₱ doz. $6.00.....20%
Jones' Hose Menders, ₱ doz., ⅜ in., 40¢; ¾ in., 50¢; 1 in., 85¢.....50%
Victor Complete Hose Menders, ₱ doz $3.50.....25%

Milk Cans—See *Cans, Milk.*

Mills—Coffee—

Box and Side, List, Jan. 1, '88.....60&10@60&10&10%

Net prices are often made on some goods which are lower than above discounts.

Enterprise Mfg. Co., list Jan. 17, '93..30%
National, list Jan. 1, '94.....30%
Parcel's Columbia and Victor....60&10%
Parcel's Upright.....30&10@40%
Swift, Lane Bros.....33⅓%

Mincing Knives—

See *Knives, Mincing.*

Molasses Gates—

See *Gates, Molasses.*

Money Drawers—

See *Drawers, Money.*

Mowers, Lawn—

Net prices are very frequently quoted

	10	12	14	16-inch
Cheap	$1.65	$1.70	$1.75	$1.80
Medium	2.50	2.75	3.00	3.25
High Grade	3.50	3.75	4.00	4.25

Pennsylvania and Continental.....60&10&10%

Philadelphia:
All Styles except A and E.....70&10%
Style A, all Steel.....60&10%
Style E, Low Wheel.....60&10%
Style E, High Wheel.....70&10%
Racine.....60&10&10%

Muzzles—

Safety.....₱ gr. $12.00@$12.50

Nails—

Cut and Wire. See *Trade Report.*
Wire Nails and Brads, Papered. List, May 1, '92.....See *Trade Report.*
Hungarian, Finishing, Upholsterers', &c. See *Tacks.*

Horse—

Nos.	6	7	8	9	10
A. C.	25¢	23¢	22¢	21¢	21¢
					40&10&5%
American	9½	9½	9½	9½	9½...net
Ausable	28¢	26¢	25¢	24¢	23¢
					40&10&10%
Capewell	19¢	18¢	17¢	16¢	[illegible]5%
C. B. K.	25¢	23¢	22¢	21¢	21¢...40%
Champlain	28¢	26¢	25¢	24¢	23¢
					40&5&2%
Clinton Fin.	19¢	17¢	16¢	15¢	14¢30&5%
Maud S.	25¢	23¢	22¢	21¢	21¢
					50&10&5%
Neponset	23¢	21¢	20¢	19¢	18¢...40%
Putnam	23¢	21¢	20¢	19¢	18¢.33⅓%
Vulcan	23¢	21¢	20¢	19¢	18¢...25%

Picture—

Brass Head, Combination list.....50&10%
Brass Head, Sargent's list.....70&10@70&10&5%
Porcelain Head, Combination list.40&10%
Porcelain Head, Sargent's list....50&10%
Crown.....50&10%
Niles' Patent.....40%

Nippers, See *Pliers and Nippers.*

Nut Crackers—

See *Crackers, Nut.*

Nuts—List Dec. 18, 1889.

Cold Punched. Off list.
Mfrs. or U. S. Standard.
Hexagon, plain.....$6 20
Square, plain.....5.90
Square, C. T. & R.....6.00
Hexagon, C. T. & R.....6.70
Hot Pressed.
Mfrs., U. S. or Nar. Gauge Standard.
Square.....$6 20
Hexagon.....6.90

Oakum—

Best or Government.....₱ ℔ 5¾¢
Navy.....₱ ℔ 4¾¢
U. S. Navy.....₱ ℔ 5¼¢
Plumbers' Spun Navy.....2¾¢
F. o. b. New York. In carload lots ¼¢ ₱ ℔ off.

Oil Tanks—See *Tanks, Oil.*

Oilers—

Brass and Copper.....50&10@60%
Zinc and Tin.....75@75&10%
Malleable, Hammers' Improved, No. 1, $3.60; No. 2, $4; No. 3, $4.40 ₱ doz. 20%
Malleable, Hammers' Old Pattern, same list.....50&10%
Wilmot & Hobbs Mfg. Co.....70&10@75%

Openers, Can—

French.....₱ doz. 85¢
Iron Handle.....₱ doz. 60@75¢
Kip Duke, or Rogers & Bros..₱ gro $6 50
National, ₱ gro.....$1.75@$2.00
Sardine Scissors.....₱ doz. $2.00@$2.10
Sprague, Iron or Wood Handles.....₱ doz. 40@45¢
Stowell's.....75&10%

Streeter's:
Sensible, Japanned.....₱ gr. $3.50
Sensible, Nickel.....₱ gr. $5.50
Surprise.....₱ gr. $2.00
New Sprague, Metallic H'dle ₱ gr. $3.50
New Sprague, Wood H'dle..₱ gr. $4.50

Packing—

Rubber—

Standard, fair quality.....70&10@75%
Inferior quality.....75&10@80%
Extra.....60&5@60&10&5%
Jenkins' Standard, ₱ ℔ 80¢...25@25&5%

Miscellaneous—

American Packing.....9¢ @ 10¢ ₱ ℔
Cotton Packing.....13¢ @ 14¢ ₱ ℔
Italian Packing.....10½¢ @ 11½¢ ₱ ℔
Jute.....5¢ @ 5½¢ ₱ ℔
Russia Packing.....12¢ @ 13¢ ₱ ℔

Pails—

Creamery—

S. S. & Co., with gauges.. No 1 $5.25; No. 2, $5.50 ₱ doz.....15%

Galvanized—

Inch	10	12	14
Water, Standard, ₱ gro	$16.50	$18.50	$20.50
Water, Competition, ₱ gro	$14.00	$16 00	$18 00
Fire, ₱ gro	$19 00	$22.50	$25 50
Well, ₱ gro	$31.00	$32.00	$35.00

Pans—

Dripping—

Large Sizes.....₱ ℔ 3½@3¾¢
Small sizes.....₱ ℔ 4 @4½¢

Fry—

Standard List.....80@80&10%

No.	0	1	2	3	
₱ doz.	$3.00	$3.75	$4.25	$4.75	@5.25
No.	5	6	7	8	
₱ doz.	$6.00	$7.00	$8.00	$9.00	

Acme Fry Pans.....75@75&10%

Roasting and Baking—

Columbian, S. S. & Co., Nos. 5, ₱ doz., $10; 10, $11.50; 20, $13; 30, $15....60%
Simplex No. 08, ₱ doz. $7.00; No. 09, $8.50.....60%

Paper—

Building Paper—

	Per roll
Rosin Sized Sheathing:	500 sq. ft.
Light wt., 20 sq. ft. to lb	$0.35@0.40
Medium wt., 12 sq. ft. to lb.	$0.55@0.60
Heavy wt., extra quality	$0.95@1.05
Barrett's Water Proof Sheathing	$1.35@1.75
Medium Grades Water Proof Sheathing	$0.80 to 1.25
Deafening Felt, 9, 6 and 4½ sq. ft. to lb., ₱ ton	$42.50

Tarred Paper.

1 ply (roll 300 sq. ft.), ₱ ton.... $35@37
2 ply, heavy, ₱ roll 100 sq. ft.....90¢
2 ply, light, ₱ roll 100 sq. ft.....75¢
3 ply, heavy, ₱ roll 100 sq. ft.....$1.20
3 ply, light, ₱ roll 100 sq. ft.....$1.00

Sand and Emery—

List April 19, 1886.....50&10&5@60%

Parers—

Apple—

Advance.....₱ doz. $4.50
Baldwin.....₱ doz. $5.00
Bonanza.....each $5.00
Dandy.....each $7.50
Eureka, 1888.....each $16.00
Family Bay State.....₱ doz. $12.00
Hudson's Lightning Star.....₱ doz. $4.00
Hudson's Mowing Table.....₱ doz $5.50
Improved Bay State ₱ doz. $27.00@30.00
New Lightning.....₱ doz. $5.50
Penn.....₱ doz. $4.75
Perfection.....₱ doz. $4.00
Reading 72.....₱ doz. $4.00
Reading 78.....₱ doz. $7.00
Turn Table.....₱ doz. $4.50
White Mountain.....₱ doz. $4.00

Potato—

Saratoga.....₱ doz. $5.50
White Mountain.....₱ doz. $4.50

Paris Green—

Arsenic kegs or casks.....₱ ℔ 12 ¢
Kegs of 100 to 175 pounds.....₱ ℔ 12½¢
Kits of 14, 28 and 56 pounds..₱ ℔ 13½¢
Paper boxes 2 to 5 pounds....₱ ℔ 13½¢
Paper boxes 1 pound.....₱ ℔ 14 ¢
Paper boxes ½ pound.....₱ ℔ 15 ¢
Paper boxes ¼ pound.....₱ ℔ 16 ¢

Picks and Mattocks—

List Feb. 23, 1899.....70&10@75%

Pinking Irons—

See *Irons, Pinking.*

Pins—

Bow—

1¾-inch.....₱ gro. $4.50@$5.00
2-inch.....₱ gro. $5.00@$5.50

Escutcheon—

Brass.....70@70&10%
Iron, list Nov. 11, '85.....60@60&5%

Pipe, Cast Iron Soil—

Factory Shipments.

Standard.....75&5@75&10%
Extra Heavy.....75&10&5@80%
Fittings.....80@80&5%

Pipe, Wrought—

Factory Shipments.

List February, 1899.
Plain and Galvanized.....60&5 tens &5%
Screw and Socket Casing.....52½&10%
Inserted Joint Casing.....21½%
Cold Drawn Seamless Steel Tubing..60%

Planes and Plane Irons—

Wood Planes—

Molding.....45@45&5%
Bench, First quality.....50&5@50&10%
Bench, Second quality.....50&10&5@60%
Bailey's (Stanley R. & L. Co) 50&10&10@50&10&10&10%

Iron Planes—

Bailey's (Stanley R. & L. Co).....50&10&10@50&10&10&10%
Chaplin's Iron Planes.....50&10%
Miscellaneous Planes (Stanley R. & L. Co.).....25&10&10@25&10&10&10%
Sargent's.....60&10&10@70%

Plane Irons—

Standard List.....30&10@30&10&10%
Auburn Thistle.....30&10@30&10&10%
Buck Bros.....30%
Butcher's.....$5.00@5.25 to £
Stanley R. & L. Co...50&10@50&10&10%
L. & L. J. White.....20&5@25%

Plates—

Felloe.....₱ ℔ 6¢@6½¢
Self-Sealing Pie Plates (S. S. & Co.), ₱ doz. $2.00.....50%

Pliers and Nippers—

Acme Nippers.....50%
Bernard's:
Parallel Pliers, &c.....33⅓%
Paragon Pliers.....50%
Lodi Pliers.....50%
Elm City Fence Pliers.....35%
Button's.....70&10@70&10&5%
Cronk's Patent Pliers.....60%
Cronk's Stubb's Pat. Pliers.....50&10%
Cronk's Button Pattern.....70
Cronk's Como. Cutting and Gas Pliers, ₱ doz. $20.00, 60%

Gas Pliers, ₱ doz.:

	7-in.	8-in.	9-in.	10-in.
Best		$5.25	$6.00	$6.50
Good	$2.50	2.75	3.00	3.50

Heller's Farriers' Pincers and Tools.....40@40&5%
Morrill's Parallel, ₱ doz. $12.00.....30&5%
P. S. & W. Cast Steel.....50@50&5%
P. S. & W. Tinners' Cutting Nippers, add 6%.....10%
Utica Drop Forge & Tool Co.:
Combination Pliers.....40&5%
Side Cutting Pliers.....40&5%
Hall Patent Nipper.....40&5%
Round and Flat Nose Pliers.....40&5%
End Cutting Pliers.....40&5%
Royal Blue.....40&5%
Glass Pliers.....40&5%
Burner Pliers.....40&5%

Plumbs and Levels—

Plumbs and Levels.....70&10&10@70&10&10&10%
Cook's.....40&10&10@40&10&10&5%
Disston's.....70%
Pocket Levels.....75&10&10@75&10%
Stanley R. & L. Co.....70&10&10@75&10%
Stanley's Duplex.....25&10@25&10&10%
Woods' Extension.....33⅓%

Poachers, Egg—

Buffalo Steam Egg Poachers, ₱ doz., No. 1, $4.00; No. 2, $9.00; No. 3, $9.00; No. 4, $12.00.....50%

Points, Claziers'—

Bulk and 1 ℔ papers.....₱ ℔ 11½¢
½-℔ papers.....₱ ℔ 12 ¢
¼-℔ papers.....₱ ℔ 12½¢

Pokes, Animal—

Bishop's American.....₱ doz. $2.75
Bishop's I. X. L.....₱ doz. $5.50
Bishop's Steel Monarch.....₱ doz. $4.25
Bishop's Pioneer.....₱ doz. $3.25
Ft. Madison Hawkeye.....₱ doz. $3.00
Ft. Madison, Western.....₱ doz $3.50
Ironclad, Sunbury, with strap, ₱ doz. $4.25
Ironclad, Sunbury, with snap, ₱ doz. $4.00
Metallic Horse Poke.....₱ doz. $5.00

Police Goods—

Bean's.....25%
Tower's.....25%

Polish—Metal—

Prestoline Liquid, No. 1 (½ pt.), ₱ doz. $3.00; No. 2 (1 qt.), $9.72.....40%
Prestoline Paste.....33⅓@40%
U. S. Metal Polish Paste, 3 oz. boxes, ₱ doz. 50¢; ₱ gr. $4.50; ½ ℔ boxes, ₱ doz. $1.25; 1 ℔ boxes, ₱ doz. $2.25.
U. S. Liquid, 8 oz. cans, ₱ doz. $1.25; ₱ gr. $12.00.
Barkeepers' Friend Metal Polish, ₱ doz. $1.75; ₱ gr. $18.00.
Wynn's White Silk, ½ pt. cans, ₱ doz. $1.50

Stove—

Joseph Dixon's, ₱ gr. $5.75.....10%
Dixon's Plumbago.....₱ ℔ 8¢
Fireside.....₱ gr. $2.50
Gem, ₱ gr. $4.50.....10%
Japanese.....₱ gr. $3.50
Jet Black.....₱ gr. $3.50
Wynn's Black Silk, 5 ℔ pail.....₱ ℔ 12¢
Wynn's Black Silk, ½ ℔ box, ₱ doz. $1.00
Wynn's Black Silk, 5 oz. box, ₱ doz. $0.75
Wynn's Black Silk, 8 oz. liq., ₱ doz. $1.00

Poppers, Corn—

Round or Square.
1 qt.....₱ doz. 60¢; ₱ gr. $6.00
1½ qt.....₱ doz. 70¢; ₱ gr. 7.50
2 qt.....₱ doz. $1.10; ₱ gr. 11.50
Quincy Corn Popper, 1 qt., ₱ gr. $17.00; 2 qt., $22.00.

Post Hole and Tree Augers and Diggers—

See also *Diggers, Post Hole, &c.*

Potato Parers—

See *Parers, Potato.*

Pots—

Glue—

Enameled.....40&10&5@50%
Tinned.....40&5@40&10%

Powder—

In Canisters:
Duck, 1 ℔ each.....45¢
Fine Sporting, 1 ℔ each.....75¢
Rifle, ½ ℔ each.....15¢
Rifle, 1 ℔ each.....25¢
In Kegs:
Duck, 6¼-℔ kegs.....$2.35
Duck, 12½-℔ kegs.....$4.25
Duck, 25-℔ kegs.....$8.00
Rifle, 6¼-℔ kegs.....$1.25
Rifle, 12½-℔ Kegs.....$2.25
Rifle, 25-℔ kegs.....$4.00
King's Smokeless:
Keg (25 ℔ bulk).....$20 00
Half Keg (12½ ℔ bulk).....$10.25
Quarter Keg (6¼ ℔ bulk).....$5.25
Canister (1 ℔ bulk).....$0.90
Case, 1 ℔ Canisters (50 ℔ bulk).....$45.00
Half Case, 1 ℔ Canisters (25 ℔ bulk).....$22.75
} 25% 10&5%
King's Semi-Smokeless:
Keg (25 ℔ bulk).....$16.00
Half Keg (12½ ℔ bulk).....$8.25
Quarter Keg (6¼ ℔ bulk).....$2.75
One Pound Can, bulk.....$0.50
} 25% 10&5%

Presses—

Fruit and Jelly—

Enterprise Mfg. Co.....25@30%

Pruning Hooks and Shears—See *Shears.*

Pullers Nail—

Crown, ₱ doz. $18.00.....50%
Crown France, ₱ doz. $15.00.....50%
Giant, No. 1, ₱ doz. $18; No. 2, $16.50; No. 3, $15.....40%
National, ₱ doz. $24.00.....40%

Pelican, ₱ doz. $9.00.....15&10%
Scranton, No. 1 and 2, ₱ doz.. ...$10.00
Scranton, No. 3, ₱ doz..... .....$9.50

Pulleys—

Hay Fork, Swivel or Solid Eye.....
₱ doz. $1.50
Hay Fork, Stowell's Anti-Friction, 5-in. Wheel, ₱ doz. $12.00..... 40%
Hay Fork, Stearns' No.15 & 25 ₱doz. $1.75
Hay Fork, Stearns' No.35 & 45 ₱doz. $2.00
Hay Fork, Stearns' Nos. 56 & 66. ...$2.25
Hot House, Awning, &c.....60@60&10%
Japanned Clothes Line.....60@60&10%
Japanned Screw.....70&10&10%
Japanned Side.....70&10&10%
Stowell's Ceiling or End, Anti-Friction 40%
Stowell's Dumb Waiter, Anti-Friction 50%
Stowell's Electric Light.....83⅓%
Stowell's Side, Anti-Friction.....50%
Sash (Auger Mortise):
Common Sense, 1¾ in., ₱ doz., 18¢; 2 in., 20¢.
Empire.....1¾ in., 17¢; 2 in., 19¢
L. C.....1¾ in., 15¢; 2 in., 17¢
Ideal No. 13.....1¾ in.. ₱ doz., 15½¢
Improved.....1¾ in., 17¢; 2 in., 19¢
Niagara.....1¾ in., 16¢; 2 in., 17¢
No. 26, Troy.....1¾ in., 15¢; 2 in., 17¢
Star.....1¾ in., 16¢; 2 in., 17¢
Acme.....1¾ in., 18¢; 2 in., 19¢
Tackle Blocks—See *Blocks.*

Pumps—

Cistern, Best Makers.....65&10@70%
Pitcher Spout, Best Makers..75@75&10%
Pitcher Spout, Cheaper Goods.....
75&10@80%
Flint & Wallings Fast Mail.....60%
Myer's Pumps, low list 55%
Pump Leathers, all sizes.....₱ gr. $6.00
Contractors' Rubber Diaphragm Non-chokable, B. & L. Block Co.....20%

Punches—

Bemis & Call Co.'s Cast Steel Drive.50&5%
Bemis & Call Co.'s Check.....55%
Bemis & Call Co.'s Spring.....50&5%
Bemis & Call Co.'s Springfield Socket..65%
Niagara Hollow Punches.....45%
Niagara Solid Punches.....55%
Revolving.....
₱ doz. $3.50@3 75
Saddlers' or Drive, good...₱ doz. 60@65%
Spring, good quality.. ₱ doz. $1.70@1.80
Spring, Leach's Pat.....15%
Steel Screw, B. & K. Mfg. Co.....50%
Tinners' Hollow, P., S. & W. Co....20&2%
Tinners' Solid, P., S. & W.Co., ₱ doz., $1.44.....55%

Rail—

Barn Door, &c.—

Barn Door. Light....	In.	½	⅝	¾
₱ 100 feet.....		$1.30	1.95	2.00

B. D., for N. E. Hangers:

	Small.	Med.	Large.
₱ 100 feet.....	$1.60	2.00	2.50

Cronk's Double Braced Steel Rail, ₱ foot.....3¢
Lanes' O. N. T., ₱ 100 ft.....$2.40
Lanes' Standard, ₱ ft.....3¼¢
McKinney's None Better.....₱ ft. 2¾¢
McKinney's Standard.....₱ ft. 3¼¢
Moore's, Wr't. Bracket, Steel.....$2.40
Sliding Door, Bronzed Wr't Iron. ₱ ft. 6½¢
Sliding Door, Iron Painted.....₱ ft. 2¢
Sliding Door, Wr't Brass, 1½ in. ₱ ℔ 36¢
.....80%
Stowell's Steel Rail.....85&10%
Terry's Steel Rail .....₱ ft. 3¼¢

Rakes—

1895 or old list often used:
C. S. Rakes.....60&10&3%
Malleable Rakes.....70&10&3%
Cast Steel, Asso. List.....75&5&2%
Malleable.....70&10%
Buffalo Lawn and Garden..₱ doz..$3.50
Fort Madison Red Head Lawn.....$3.00
Fort Madison Blue Head Lawn.....$2.65

Rasps, Horse—

Disston's 75%
New Nicholson Horse Rasp.....70&10%
See also *Files.*

Razor Strops—

See *Strops, Razor.*

Reels—

Clothes Line—

Stearns'.....33⅓&10%

Fishing—

Hendryx Aluminum, German Silver, Gold, Bronze, Silver, Rubber, Populo and Salmon, Single Action, Multiplying and Quadruple, all sizes.....25%
Hendryx Single Action Series, 102P and PN, 202P and PN, 102 PR and PRN, 202 PR and PRN, 304 P and PN, 00304P and PN, 502 and 502N, 802 and 802N, 02084N, Competitor.50%
Hendryx Multiplying and Quadruple Series, 3004N and PN, 4N and PN, 2904N, 2904P and PN, 002904PN, 0924 and 0924N, 5009N and PN.....40&10%

Registers—

For points on Mississippi river and East:
Black Japanned.....50%
White Japanned 0%
Bronzed Finishes.....40%
Nickel Plated.....5 %
Electro Plated in Brass, &c.....40%
White Porcelain.....30%
Solid Brass and Bronze Metal.....25%
Note.—Higher prices are quoted in territory further West.

Rings and Ringers—

Bull Rings—

Peck, Stow & W. Co.'s.....60@60&10%
Sargent's.....80@80&10%

Hog Rings and Ringers—

Blair's Rings..... ₱ gro. $3.75@4.00
Blair's Ringers..... .....₱ doz. 55@60c
Brown's Rings..... ₱ gro. $3,75@4.00
Brown's Ringers.....₱ doz. 55@60c
Hill's Rings.....₱ gr. boxes, $3.25@3.50
Hill's Ringers, G. I..... ₱ doz. 50@55c
Perfect Rings.....₱ gro. $7.00@7.50
Perfect Ringers, ₱ doz.....75@80¢

Rivets and Burrs—

Copper.....40&10@50%
Norway Quality or Soft Steel:
Tinners'.....70@70&10%
Miscellaneous.....70@70&10%

Rivet Sets—See *Sets.*

Roasting and Baking Pans—See *Pans, Roasting and Baking.*

Rods—

Stair, Black Walnut .....₱ doz. 40¢
Stair, Brass, Oval or Hollow..50@50&10%

Rollers—

Acme Stowell's Anti-Friction.... 50&10%
Barn Door, Sargent's list.60&10&10@70%
Lane's, Stay .....33⅓&5%
Stowell's Barn Door Stay...₱ doz. $1.00

Rope—

The following prices are f.o.b. New York or factory; terms, 1½% for cash.

Manila, 7-16 inch and larger.....	₱ ℔ .@ 9½¢
Manila.....½ inch.	₱ ℔ .@ 9½¢
Manila....¼ and 5-16 inch.	₱ ℔ .@10½¢
Manila, Tarred Rope, 15 thread	₱ ℔ .@ 9½¢
Manila Hay Rope Medium.	₱ ℔ .@ 9½¢
Sisal... 7-16 in. and larger.	₱ ℔ .@ 8½¢
Sisal.....½-inch.	₱ ℔ .@ 8¾¢
Sisal.....¼ and 5-16 in.	₱ ℔ .@ 9¼¢
Sisal, Hay Rope, 2 to 10 ply.	₱ ℔ .@ 8¼¢
Sisal. Medium Lath Yarn..	₱ ℔ .@ 7¾¢
Cotton Rope:	
Best, ¼ in. and larger.....	₱ ℔ 13@14¢
Medium, ¼ in. and larger..	₱ ℔ 10@12¢
Common, ¼ in. and larger...	₱ ℔ 8@10¢
Jute Rope.....	₱ ℔ 5½@6¢

Wire Rope—

List Sept. 1, '94. All kinds. 20&2½&2 cash

Ropes, Hammock -

Covert Saddlery Works.....70%

Rules—

Boxwood.. 75&10&10&10@75&10&10&10&10&10%
Ivory... .40&10&10@40&10&10&10&10%
Lufkin's Steel.....50&10%
Lufkin's Lumber ... .50&10%
Stanley R. & L. Co.;
Boxwood.....
75&10&10@75&10&10&10&10%
Ivory..... .40&10&10@40&10&10&10%

Sad Irons—See *Irons, Sad.*

Sand and Emery Paper and Cloth—

See *Paper and Cloth.*

Sash Cords—See *Cord, Sash.*

Sash Locks—See *Locks, Sash.*

Sash Weights—

See *Weights, Sash.*

Sausage Stuffers or Fillers—See *Stuffers or Fillers, Sausage.*

Saws—

NOTE.—Extra 5@10% often given.

Atkins' Circular.....	50%
Atkins' Band.....	50%
Atkins' Cross Cuts.....	40%
Atkins' Mulay, Mill and Drag.....	50%
Atkins' One-Man Saw.....	40&10%
Atkins' Wood Saws	40&10%
Atkins' Hand, Compass, &c.....	40%
Disston Circular Solid and Inserted Tooth.....	50%
Disston Band 2 to 14 in. wide.....	60%
Disston Band ¼ to 1¼.....	70%
Disston Crosscuts.....	50%
Disston Narrow Crosscuts.....	55%
Disston Mulay, Mill and Drag.....	50%
Disston Framed Woodsaws.....	35%
Disston Woodsaw Blades.....	40%
Disston Woodsaw Rods.....	25%
Disston Handsaws, Nos. 12, 99, 9, 16, d100, D8, 120 7s, 77, 8.....	25%
Disston Hand Saws, Nos 7, 107, 107½, 3, 1, 0, 00, Combination.....	30%
Disston Compass, Keyhole, &c.....	25%
Disston Butcher Saws and Backs.....	5%
C. E. Jennings & Co.'s.....	25&5@30&5%
Peace Circular and Mill.....	45&10%
Peace Cross Cuts, list Jan. 1, '93..45&10&5%
Peace Hand, Panel and Rip.....25&10&5%
Richardson's Circular and Mill...45&10%
Richardson's X Cuts, list Jan. 1, '93, 45&10&5%
Richardson's Hand, &c..... 25&10&5%
Simonds' Circular Saws.....45@50%
Simonds' Crescent Ground Cross Cut Saws..... 35%
Simonds' One-Man Cross Cuts.... 40&10%
Simonds' Gang Mill, Mulay and Drag Saws..... 45@45&5%
Wheeler, Madden & Clemson Mfg. Co.:
Cross Cuts, list Jan. 1, '93....45&10&5%
Hand, Panel and Rip... .....30&10&10%
Woodrough & McParlin:
Cross Cuts, list Jan. 1, '93..45&10&10%
Hand, Panel and Rip.....25&10&10%

Hack Saws—

Disston Concave Blades.....95%
Disston Keystone..... .....30%
Disston Hack Saw Frames..... 30%
Griffin's complete..... 50@50&5%
Griffin's Hack Saw Blades .... 50@50&5%
Star Hack Saws and Blades..... 15&10%

Scroll—

Barnes' No. 7, $15.....25%
Barnes' Velocipede Scroll Saw, $18...20%
Barnes' Scroll Saw Blades.....40%
Loster, complete, $10.00.....15&10%
Rogers, complete $4.00.....15&10%

Saw Frames—

See *Frames, Saw.*

Saw Sets—See *Sets, Saw.*

Saw Tools—See *Tools, Saw.*

Scale Beams—

See *Beams, Scale.*

Scales—

Chatillon's Eureka.....25%
Chatillon's Favorite.....40%
Chatillon's Grocers' Trip Scales.....50%
Family, Turnbull's .....30@30&10%
Hatch, Counter, No. 171, good quality, ₱ doz. $17.00@18.00
Hatch, Tea, No. 161...₱ doz. $5.75@6.00
Pelouse Scales—Family, Candy, Grocers and Postal.....33⅓%
Union Platform, Plain.....$2.00@2.10
Union Platform, Striped.....$2.15@2.25
"The Standard" Portables.....45@50%
"The Standard" R. R. and Wagon. ..60%

Scrapers—

Adjustable Box Scraper (S. R. & L. Co.) $8.00.....40&10%
Box, 1 Handle.....₱ doz. $2.00
Box, 2 Handle..... ..₱ doz. $3.00@4.00
Foot.....55&5@60&5%
Ship, No. 1, ₱ doz., $3.50; No. 2, $2.25 @$2.40
Ship, R. I. Tool Co.....10%
Tatum's Box .....25&10%

Screen Window and Door Frames—See *Frames.*

Screw Drivers—

See *Drivers, Screw*

Screws—

Bench and Hand—

Bench, Iron.....₱ doz., 1 in., $2.50; 1¼, $2.75; 1¼, $3.25
Bench, Wood, Beech ..₱ doz. $2.00@2.20
Hand, Wood..... ....30&10@40&10%
Hand, Grand Rapids.....35%

Coach, Lag and Hand Rail—

Lag, Common Point, list Jan. 30, '95... 80&20%
Coach and Lag, Gimlet Point, list Jan. 30, '95.....80&15%
Hand Rail, list Jan. 1, 1881.....82½%

Jack Screws—

Millers Falls.....50&10&10%
Millers Falls, Roller .....50&10%
P., S. & W.....40@40&10%
Sargent.....70&10&10%
Stearns'.....40&10%
Tatum's.....25&10%

Machine—

List Jan. 1, '98.
Flat or Round Head, Iron.....60%
Flat or Round Head, Brass.....50%

Set and Cap—

Set (Iron or Steel).....75@75&10%
Sq. Hd. Cap.....70@70&10%
Hex. Hd. Cap..... .....70@70&10%

Wood—

Manufacturers' Circular Prices
List Nov. 10, 1898.

Flat Head, Iron.....	87½%
Round Head, Iron.....	85 %
Flat Head, Brass	80@10%
Round Head, Brass.....	75@10%
Flat Head, Bronze.....	75@10%
Round Head, Bronze.....	75%
Rogers' Drive Screws.....	87½%

Note—An extra 5 or 10% is often given.

Scroll Saws—See *Saws, Scroll.*

Scythes—

Grass and Grain.....50&10%

Scythe Snaths—

See *Snaths, Scythe.*

Seeders—

Raisin—

Enterprise.....25@30%

Sets—

Awl and Tool—

Brad Awl and Tool Sets:
Wood Hdle., 10 Awls, ₱ doz.....$2.00
Wood Hdle., 14 Awls, 6 Tools, ₱ doz. $2.25@2.40
Aiken's Sets, Awls and Tools:
No. 20, ₱ doz. $10.00.60&10@60&10&5%
Fray's Adj. Tool H'dls...Nos. 1, $12; 2, $18; 3, $12; 4, $9; 5, $7..... .....50%
Millers Falls Adj. Tool H'dls, No. 1, $12; No. 4, $12; No. 5, $18 .... 15&10%
Stanley's Excelsior:
No. 1, $7.50; No. 2, $4.00; No. 3, $5.50.....40&10@40&10&5%

Garden Tool Sets—

Ft. Madison Rakes, Shovel and Hoe.....
₱ doz.....$9.00

Nail—

Round, assorted.....₱ gr. $3.00@3.25
Octagon.....₱ gr. $4.00@4.75
Buck Brothers.....27½%
Cannon's Diamond Point, ₱ gr. $12..25%
Snell's Corrugated, Cup Pt.....50%
Snell's Knurled, Cup Pt..... ....66⅔%

Rivet—

Regular list.....70@70&10%

Saw—

Aiken's Genuine.....₱ doz. $4.50@5.00
Aiken's Imitation.....₱ doz. $3.00@3.10
Atkin's Criterion.....₱ doz. $6.00
Atkin's Adjustable.....₱ doz. $8.00
Bemis & Call Co.'s Cross Cut.....30&5%
Bemis & Call Co.'s Plate.....20%
Bemis & Call Spring Hammer.....30&5%
Disston's Star and Monarch.....25%
Hammer, Bemis & Call Co.'s new Pat.45%
Hammer, Seymour, Smith & Son, ₱ doz. $4.75
Morrill's No. 1, $15.00.....40&20%
Nos. 3 and 4, Cross Cut, $23.00..40&20%
No. 5, Mill, $31.00.....40&20%
No. 10, $15.50.....40&20%
No. 11, $16.00.....40&20%
Stillman.....₱ doz. $1.00
Taintor Positive, ₱ doz. $18.....80%

Sharpeners, Knife—

Tanite Mills ₱ gross, $14.40....25@33⅓%

Shaves, Spoke—

Iron .....₱ doz..$0.95@1.00
Wood.....₱ doz..$2.25@2.50
Bailey's (Stanley R. & L. Co.).....50&10%
Cincinnati.....25&10%
Goodell's, ₱ doz. $9.00.....15&10%
Stearns'.....40&10%
Tatum's.....25&10%

Shears—

Cast Iron, good quality, ₱ gross, 7-in., $14; 8-in., $16; 9-in., $18.
Cast Iron, cheaper grade, ₱ gross, 7-in., $8.50; 8-in., $9; 9-in., $11.50.
Acme Cast Shears.....40@40&5%
Straight Trimmers, &c.
Good quality..... 70&10@75&10%
Second quality.....80&10@85%
Davenport Cutlery Co.....60@80&10%
Heinisch's Tailors' Shears.....40@40&5%
Seymour's, list Dec. '81.....
60&10&10@70&5%
Seymour's Nickel.....50&10@60&5%
Seymour's Tailors Shears.....40@40&5%
Wilkinson's Hedge.....50%
Wilkinson's Sheep.....15%

Tinners' Snips—

Forged Handles, Steel Blades.....20&10%
Malleable Handles, Laid with Steel...40%
Forged Handles, steel Blades, Berlin...
40&10%
Niagara Snips.....40%
Seymour's..... .....60&10&10@70&5%

Pruning Shears and Tools—

Disston's Combined Pruning Hook and Saw, ₱ doz. $18.00.....25@25&10%
Disston's Pruning Hook, ₱ doz. $12.00 .....25@25&10%
Eagle Pruning Shears.....60%
John T. Henry Mfg. Company:
Henry's Genuine, Nos. 1, 2 and 22 .....50&10%
Henry Pattern, No. 20 ..... 50&25%
Henry's Pattern, No. 21 .....50&30%
Conn. Pattern, Nos. 32, 33 and 3.50&25%
Conn. Pattern, No. 4.....50&20%
Henry's Orange Shears.....50&20%
Henry's Grape Shears.....50&20%
Henry's Tree Pruners.....75%
Levin Pruner, No. 23, $9.00 ₱ doz. ..45%
Levin Pruner, No. 24, $12.00 ₱ doz ..45%
No. 100 Pruning Shear.....60&10%
P., S. & W. Co.....60%
Seymour's.....60&10&10@70&5%
Seymour Smith & Son:
Rockdale.....20%
New Standard Tree Pruner. ....80&5%
Others.....65%
Telegraph Tree Pruner.....70&5%
Waters' Tree Pruner .....80&5%
Wheeler, M. & C. Co., Combination, ₱ doz. $12.00.....25&10@25&10&5%

Sheaves—Sliding Door—

Stowell's Anti-Friction..... 50%
Patent Roller.....60&10@60&10&5%
Patent Roller Hatfield's, Sargent's list, 80&10@80&10&7%
Reading..... .....70&10@75%
R. & E.....60&10@60&10&5%
Wrightsville, Hatfield Pattern....80&10%

Sliding Shutter—

Reading list.....70&10@75%
R. & E.....60@60&10%
Sargent's list.....60@60&10%

Shells—

Brass Shot Shells, Club, Rival, Climax, 65&2%
Brass Shot Shells, first quality.....60&2%
First quality 4, 8, 10 and 12 gauge, 25&10&2%
First quality Rival, Club and Climax brands, 14, 16 and 20 gauge ($7.50 list) .....20&10&2%
Quick Shot Reinforced New Victor40&2%
Smokeless brand, 12, 10, 16 gauge..... 33⅓&10&2%
Star, Club, Rival and Climax Brands . 33⅓&10&2%
Trap brand 12 and 10 gauge. 33⅓&10&2%

Shells, Loaded -

Loaded with Black Powder.....
40&5@40&10%
Loaded with Nitro Powder.....
40&10&10&5@40&10&10&10%

Ship Tools—

L. & I. J. White 25%

Shoes, Horse, Mule, &c.—

Burden's, Perkins', Phœnix, Old Dominion Bryden's Boss Crescent, &c., from jobbers..... .....$3.10@3.25
Bryden's Frog Pressure..... .....$4.00
Gibbs' Rubber Cushioned....₱ set, $1.50

Shot—

Drop, up to B 25-℔ bag.....$1.40@1.45
Drop, up to B, 5-℔ bag 30
Drop, B and larger, 25-℔ bag.$1.65@1.70
Drop, B and larger, 5-℔ bag..... .35
Buck 25-℔ bag.....$1.65@1.70
Buck, 5-℔ bag..... .35
Chilled, 25-℔ bag.....$1.68@1.73
Dust Shot, 25-℔ bag..... 2.00
Dust Shot, 5-℔ bag..... .. .50

These prices are often shaded 5@10¢ ₱ 25 ℔ bag, especially in the West, and with the rapid advances which have taken place merchants are often in a position to undersell the manufacturers.

Shovels and Spades—

No. 2, Polished, Sq. or Rd. Point. D or L Handle:

	Price ₱ doz. A1, 1st Grade.	B2, 2d Grade.
Plain Back.....	$8.10@8.40	$7.20@7.50
Strap Back.....	7.50@7.90	6.90@6 90
Cleveland Pat'rn	7.80@8.10	6.90@7 20

	C3, 3d Grade.	D4, 4th Grade.
Plain Back.....	$6.30@6.60	$5 70@6 00
Strap Back.....	5.70@6 00	5.10@5.40
Cleveland Pat'rn	6 00@6.30	5.40@5.70

All other sizes add 30¢ ₱ doz.
Black deduct 30¢ ₱ doz.

Shovels and Tongs—

Brass Head .....60&10@60&10&10%
Iron Head .....60&10@60&10&5%

Sieves and Sifters—

Buffalo Metallic, S. S. & Co., ₱ gr.:

	16	16&18	18	18&20
Blued	$10.80	$11.40	$11.40	$12.00
Tinned	11.40	12.00	12.00	12.60

Eclipse .....₱ gr. $8.00@ 9.00
Hunter's Genuine .....₱ gr. $10.00@10.50
Hunter's Imitation .....₱ gr. $8.00@ 9.50
Shaker (Barler's Pat.) Flour Sifters., ₱ doz., $2.00 .....25%

Sieves, Wooden Rim—

	Iron.	Plated.
Mesh 18, Nested, ₱ doz.	$0.70	$0.85
Mesh 20, Nested, ₱ doz.	.90	1.05
Mesh 24, Nested, ₱ doz.	1.05	1.20

Sinks—

Cast Iron—

High list .....75&5@75&10%
Low list .....60&10&10@ 0%

Wrought Steel—

Columbus Galv'd and Enameled .....50&10%
Columbus, Painted .....30&10%
L. & G. .....50&10%

Slates—(From store).

"D" Slates .....50&10&10&10&5%
Unexcelled Notchless Slates, 6 & nine 10s.
Victor Slates .....6 0 and eight 10s and 5%

Slaw Cutters—See *Cutters.*

Snaps Harness—

Covert Mfg. Co.:
Leroy .....45&2%
High Grade .....45&2%
Jockey .....45&2%
Trojan .....45&2%

Covert's Saddlery Works:
Banner 75%
Crown 70%
Triumph 70%

W. & E. T. Fitch:
Bristol .....40&10%
Empire .....50&5%
National .....50&5%
Clipper .....50&10&5%
Champion .....40&10%
Victor .....60&5%
German .....50@50&5%
Sargent's Patent Guarded .....70&10@70&10&10%

Snaths—

Scythe 55%

Snips, Tinners'—See *Shears.*

Soldering Irons—

See *Irons, Soldering.*

Spoke Trimmers—

See *Trimmers, Spoke.*

Spoons and Forks—

Tinned Iron—

Basting, Cen. Stamp Co.'s list .....75&10@80%
Solid Table and Tea, Cen. Stamp. Co.'s list .....70&25%

Silver Plated—

Flat Ware .....60&5@60&10&5%
Rogers & Brother 60%
C. Rogers & Bros. 60%
Wm. Rogers Mfg. Co 60%

Miscellaneous—

German Silver .....60&10%
C. Rogers & Bros.:
18 per cent. German Silver 60%
18 per cent. Nickel silver 60%
Silver Metal .....50&10%
Wm. Rogers Mfg. Co.:
18% German Silver 60%
Rogers' Silver Metal .....50&10%

Springs—

Door—

Champion (Coil) .....50&10@50&10&10%
Gem (Coil) 20%
Rubber, complete .....₱ gro. $15.00
Star (Coil) 33⅓%
Torrey's rod, 39 in. .....₱ doz. $1.10@1.25
Warner's No. 1, ₱ doz. $1.50; No. 2, $3.40 .....55@55&10%
Victor (Coil) .....60&10@60&10&5%

Carriage, Wagon, &c.

Elliptic, Concord, Platform and Half scroll, 60&10@60&10&10&10 or following net prices:

	Tempered Blk.	Brt.	Oil Tempered. Blk.	Brt.
1¼ in.	5½¢	5¾¢	6 ¢	6¼¢
1⅜ in.	5½¢	5¾¢	6 ¢	6¼¢
1⅝ in.	5½¢	5¾¢	5¾¢	6 ¢

Cliff's Bolster Springs .....40&2%
Cliff's Seat Springs .....₱ pair 45¢

Sprinklers, Lawn—

Enterprise .....25@30%
Philadelphia No. 1, ₱ doz. $12; No. 2, $15; No. 3, $24 .....35%

Squares—

Nickel plated .....} List May 1, '95 ....
Steel and Iron .....} 75&10@80&5%
Rosewood Hdl. Try Square and T-Bevels 60&10&10@70%
Iron Hdl. Try Squares and T-Bevels 40&10@40&10&10%
Disston's Try Sq. and T-Bevels ....60&10%
Winterbottom's Try and Miter ...50&10%

Squeezers—

Lemon—

Wood, Common, ₱ gr., No. 0, $5 00; No. 1, $8.50; No. 2, $10.00.
Wood, Porcelain Lined, No. 1, ₱ doz. $3.25@3.50
Tinned Iron .....₱ doz. $0.80@1.25
Iron, Porcelain Lined, ₱ doz. $3.25@3.50
Hotchkiss Straight Flash ...₱ doz. $9.00
Jennings' Star .....₱ doz. $1.85@1.90
King .....₱ doz. $2.00

Staples—

Barbed Blind, ½, ⅝ and ¾ in. ₱ ℔ 5¾@6¢
Fence Staples, Galvanized } Same price as Brb Wire
Fence Staples, Plain .....} See Trd. Rep.
Grand Crossing Tack Co.'s list ...75&10%

Steels, Butchers'—

Dick's 40%
Foster Bro's. 40%
C. & A. Hoffmann's 40%
Nichols Bros 50%
John Wilson's, list Sep. 1, '94 .....25%

Steelyards .....40@40&10%

Stocks and Dies—

Blacksmith's:
Butterfield's Goods .....35@40%
Waterford Goods .....35@40%
Gardner .....40&10%
Green River 25%
Lightning Screw Plate 25%
Little Giant 25%
Reece's New Screw Plates .....25@30%
Reversible Ratchet 25%

Stone—

Scythe Stones—

Pike Mfg. Co., list '95-'96 .....33⅓%
Cleveland Stone Co., list Nov., '92 .33⅓%

Oil Stones, &c.

Pike Mfg. Co.:
Hindostan No. 1, ₱ lb ...8¢
Sand Stone .....5¢
Turkey Oil Stone, Extra, 5 to 9 in. .....80¢ } 33⅓@ 33⅓&10%
Turkey Slips $2.00
Lily White Washita .....60¢
Rosy Red Washita .....60¢
Washita Stone, Extra .....50¢
Washita Stone, No. 1 .....40¢
Washita Stone, No. 2 .....30¢
Lily White Slips .....90¢
Rosy Red Slips .....90¢
Washita Slips, Extra .....80¢
Washita Slips, No. 1 .....70¢
Arkansas Stone, No. 1, 3 to 5½ in. $2.80
Arkansas Stone, No. 1, 5½ to 8 in. $3.50 } 33⅓@33⅓&10%
Tanite Mills:
Emery Oil, ₱ doz. $5.00 .....50@60%

Stoners—

Cherry—

Enterprise .....25@30%

Stops, Bench—

Cincinnati .....25&10%
Seymour Smith & Son, ₱ doz., No. 1, $3.50; No. 2, $3.20
Millers Falls .....15&10%
Morrill's ...₱ doz., No. 1, $10.00; No. 2, $11.00, 40&20%
Stearns' .....30&5%
Tatum's 40%

Stops, Window—

Taplin's 45%

Stove Boards—

See *Boards, Stove.*

Stove Polish—See *Polish, Stove.*

Straps, Box—

Cary's Universal .....20&10&10%

Stretchers, Carpet—

Cast Iron, Steel Points ....₱ doz. 70@75¢
Cast Steel, Polished .....₱ doz. $2.25
Socket .....₱ doz. $1.75
Bullard's .....25&10&40%

Stuffers, Sausage—

Miles' Challenge, ₱ doz. $20 ...50@50&5%
Enterprise Mfg. Co., list Jan. 17, '93 .... 25@25&75%
National Specialty Mfg. Co., list Jan. 1, '97 .....35%

Tacks, Brads, &c.—

List Jan. 15, '99.

Carpet Tacks—
American Blued .....90&3⅓%
American Tinned .....90&40%
American Cut Tacks .....90&25%
Swedes Iron Tacks .....90&5⅓%
Upholsterers' Tacks .....90&50%
Gimp Tacks .....90&50%
Lace Tacks .....85&10%
Trimmers' Tacks .....90&33⅓%
Looking Glass Tacks 75%
Bill Posters' and Railroad Tacks ... 90&33⅓%
Hungarian Nails .....80&20%
Common and Patent Brads ...75&10%
Trunk and Clout Nails:
Blued .....80&10%
Tinned .....80&10%

See Trade Report.

Miscellaneous—

Double Point Tacks ... 90&10&5@....%
Steel Wire Brads, R. & E. Mfg. Co.'s list 50&10@60%

See also *Nails, Wire.*

Tanks, Oil—

Emerald, S. S. & Co. 30-gal. $3.00
Emerald, S. S. & Co. 60-gal., $3.75
QueenCity S. S. & Co., 60-gal. each, $4.00; 100-gal., $6.25; 120-gal., $8.50; 200-gal., $14.00; 250-gal. $17.75
Wilson's:
No. 9 .....60&10%
Aztec, Force Pump .....60&10%
Cone Top, Measuring Pump 50%
Cabinet, Measuring Pump 50%
Gasoline Tanks .....60&10%

Tapes, Measuring—

American Asses Skin .....40&10@50%
Patent Leather .....25@25&10%
Steel .....33⅓@40%
Chesterman's .....25@25&5%
Keuffel & Esser Co., Steel and Metallic, new list, 1898 .....35%
Lufkin's Steel and Metallic .....33⅓@33⅓&5%

Thermometers—

Tin Case .....80&10%

Ties, Bale—Steel.

Standard Wire, list .....50&10&5%

Ties, Wall—

Cleveland, Steel .....₱ 1000, $10.00

Tinners' Shears, &c.—

See *Shears, Tinners, &c.*

Tinware—

Stamped, Japanned and Pieced, sold very generally at net prices.

Tire Benders, Upsetters, &c.—See *Benders and Upsetters, Tire.*

Tobacco Cutters—

See *Cutters, Tobacco.*

Tools—

Coopers'—

Shaves, Cincinnati Tool Co. 20%
L. & I. J. White .....20@20&5%

Saw—

Atkins' new list 40%
Simonds' 33⅓%

Transom Lifters—

See *Lifters, Transom.*

Traps—Game—

Newhouse .....50@50&10%
Oneida Pattern .....80@80&5%
Sensible .....33⅓@33⅓&10%

Mouse and Rat—

Dandy .....₱ doz. $1.75
Marty French Rat and Mouse Traps (Genuine):
No. 1, Rat .....₱ doz. $15.00
No. 3, Rat .....₱ doz. $5.85
No 3½, Rat .....₱ doz. $4.50
No. 4, Mouse .....₱ doz $4.30
No. 5, Mouse .....₱ doz $3.00
Hotchkiss Metallic Mouse, 5-hole traps, ₱ doz. 6 ¢; in full cases, ₱ doz. .....60¢
Hotchkiss Imp. Rat Killer ...₱ gr. $12.50
Hotchkiss New Rat Killer ...₱ gr. $12.50
Mouse, Wood, Choker, ₱ doz. holes 8@9¢
Mouse, Round Wire, ₱ doz. $1.50 ....10%
Mouse, Sensible 33⅓%
Rat, Decoy, ₱ gr. $10.00 .....10%
Rat, Sensible 33⅓%
Schuyler's Rat Killer, No. 1, ₱ gr. $13.50; No. 2, ₱ gr. $15.00

Fly—

Balloon, Globe or Acme .....₱ doz. $1.25; ₱ gr. $13.50
Harper, Champion or Paragon .....₱ doz. $1.75; ₱ gr. $16.50

Triers—

Butter and Cheese 25%

Trimmers, Spoke—

Bonney's No. 1, ₱ doz. $2.75; No. 2, $3.75
Cincinnati .....25&10%
Douglas', ₱ doz. $9.00 .....20%
Stearns' .....20&10%

Trowels—

Garden 70%
Dover Brick and Pointing 30%
Disston Plastering 25%
Disston "Standard Brand" and Garden Trowels 40%
Peace's Plastering .....25@25&5%
Rose Brick and Plastering ...30@30&10%
Woodrough & McParlin, Plastering .25&10%

Trucks, Warehouse, &c.—

B. & L. Block Co.'s list 40%
Daisy Stove Trucks, improved pattern ₱ doz. $18.00

Tubs, Wash—

	No. 1	2	3
Galvanized, ₱ doz.	$4.00	4 50	5.00

Galvernized S. S. & Co., with Wringer Attachment, ₱ doz., No. 10, $8.25; No. 20, $6.75; No. 30 .....$7 50

Twine—

Binder—

White Sisal, 500 feet to ℔ .....9¼¢
Standard, 500 feet to ℔ .....8¼¢
Manila, 600 feet to ℔ .....9¼¢
Pure Manila, 650 feet to ℔ .....10¾¢

Miscellaneous—

Flax Twine—	BC.	B.
No. 9, ¼ and ⅛ ℔ Balls	20¢	24¢
No. 12, ¼ and ⅛ ℔ Balls	17¢	20¢
No. 18, ¼ and ⅛ ℔ Balls	14¢	17¢
No. 24, ¼ and ⅛ ℔ Balls	14¢	17¢
No. 36, ¼ and ⅛ ℔ Balls	13¢	16¢

Chalk Line, Cotton, ⅛ ℔ Balls ....18@20¢
Cotton Mops, 6, 9, 12 and 15 ℔ to doz. 80@9¢
Cotton Wrapping, 5 Balls to ℔ ....9@10¢
American 2-Ply Hemp, ¼ and ⅛ ℔ Balls .....9@10¢
American 3-Ply Hemp, ¼ Bals .9@10¢
American 3-Ply Hemp, 1 ℔ Balls (Spring Twine) .....10@11¢
India 2-Ply Hemp, ¼ and ⅛ ℔ Balls (Spring Twine) .....8¢
India 3-Ply Hemp, 1 ℔ Balls .....8¢
India 3-Ply Hemp, 1½ ℔ Balls ....7@7½¢
2, 3, 4 and 5-Ply Jute, ½ ℔ Balls .....6½¢
Mason Line Linen, ½ ℔ Balls .....45¢
No. 264 Mattress, ¼ and ½ ℔ Balls ...34¢
Wool .....5@5½¢

Vises—

Solid Box .....60&10@60&10&5%

Parallel—

Bonney's .....50&5%
Fisher & Norris Double Screw ....15&10%
Hollands' .....40@40&10%
Massey's Perfect .....20@25%
Massey's Clincher .....40@40&10%
Merrill's 25%
Miller's Falls .....45&10%
Parker's .....20@25%
Parker's Oval Slide .....50&10%
Parker's Victor 30%
Prentiss .....20@25%
Sargent's .....70&10@70&10&10%
Simpson's Adjustable 40%
Stephens' .....25@30%
Toles' Woodworking 25%
Trenton .....40&5@40&10%

Saw Filers—

Bonney's, Nos. 2 & 3, $15.00 .....50&10%
Cincinnati .....25&10%
Diston's D 3 Clamp and Guide, ₱ set $30 .....25%
Reading .....40&10%
Stearns' Common, Nos. 0, 1, 2 & 3 ....50%
Stearns' Rubber Jaw, Nos. 10 & 33 .33⅓%
Wentworth's Rubber Jaw, Nos. 1, 2 and 3 .....40%

Miscellaneous—

Bignall & Keeler Combination Pipe Vise .....60&5%

Parker's Combination Pipe:
87 Series 60%
187 Series .....60&5%
No. 870 .....40%

Wads—Price Per M.

U. M. C. & W. R. A.—B. E., 11 up .....60¢
U. M. C. & W. R. A.—B. E., 9 & 10 .....70¢
U. M. C. & W. R. A.—B. E., 8 .....80¢
U. M. C. & W. R. A.—B. E., 7 .....80¢
U. M. C. & W. R. A.—P. E., 11 up $1.00
U. M. C. & W. R. A.—P. E., 9 & 10 ..1.25
U. M. C. & W. R. A.—P. E., 8 .....1.50
U. M. C. & W. R. A.—P. E., 7 .....1.50
Ely's B. E., 11 and larger .....$1.70@1.75
Ely's P. E., 12 to 20 .....3.00@3.25

All 90&2%

Wagon Boxes—

See *Boxes, Wagon.*

Wagon Jacks—

See *Jacks, Wagon.*

Ware, Hollow—

Aluminum—

S. S. & Co. Reduced List 40%

Cast Iron, Hollow—

Stove Hollow Ware—
Ground .....60&10@60&10&10%
Unground .....70&5@70&10%
White Enameled Ware—
Maslin Kettles .....75&10&5@80%
Boilers and Saucepans .....60@60&5%
Tinned Boilers and S'pans .....60&5%

See also *Pots, Glue.*

Enameled—

Agate and Granite Ware, list Jan. 1, '94, revised Jan. 2, '95 .....40&10%
Second Quality .....70&10@70&10&10%
Ironclad Enameled Ware, Old list ...70%
Never Break Enameled .....50&10%

Kettles—

Galvanized Tea Kettles—

Inch....	6	7	8	9
Each...	40¢	45¢	50¢	55¢

Steel Hollow Ware.

Avery Spiders & Griddles .....70@70&10%
Avery Kettles .....60@60 &10%
Never Break Spiders and Griddles .....70@ 0&10%
Never Break Kettles .....60@ 60&10%
Solid Steel Spiders & Griddles 70@70&10%
Solid Steel Kettles .....60@ 0&10%
Solid Steel Ware, Enameled .....50&10%

Silver Plated Hollow—

William Rogers Mfg. Co .....40&10&5%

Washboards—

Solid Zinc: ₱ doz.
Crescent, family size, bent frame .$2.75
Red Star, laundry size, stationary protector $4.00

Double Zinc Surface:
Diamond, family size, stationary protector $2.75
Saginaw Globe, family size, stationary protector $2.50
Wilson, family size, bent frame ...$2.50

Single Zinc Surface:
Nalad protector, family size, open back perforated $2.15
Diamond, protector family size, ventilated back $2.10
Saginaw Globe, protector, family size, ventilated back $2 00
Wilson, bent frame, family size, ventilated back $2 00
Eagle, protector, family size, ventilated back $1 85

Washers—

Leather, Axle—

Solid.....80&10&10@85%
Patent.....85@85&5%
Coil; ⅜ 1 1¼ 1½ Inch.
11¢ 13¢ 14¢ 17¢ ₱ 100.

Iron or Steel -

Size bolt..... 5-16 ⅜ ½ ⅝ ¾
Washers.....$4.00 3.00 2.25 2.00 2.00
In lots less than one keg add ¼¢ ₱ lb. 5-lb boxes add ½¢ to list.

Washer Cutters—

See *Cutters, Washer.*

Washing Machines—

See *Machines, Washing.*

Water Coolers—

See *Coolers, Water.*

Weather Strips—See *Strips, Weather.*

Wedges—

Oil Finish.....₱ lb 2.10¢
Axe Finish.....₱ lb 2.45¢

Weights, Sash—

Eastern: Carloads at factory. $15 00
Less than carloads at factory... $16.00
Western: Carloads at factory .....
$14 00@14.50
Less than carloads at factory.....
$ 5.00@15.50

Well Buckets Galvanized

See *Pails, Galvanized.*

Wheels, Well—

8-in., $2.00; 10-in., $2.50; 12-in., $2.75

Wire and Wire Goods—

Market: Nos. 0 to 18 Br. & Ann. Cop'd..... Galv ..... Tin'd, Tin'd list..... Stone, Br. and Ann'd: Nos. 16 to 18..... Nos. 19 to 26..... Nos. 27 to 36..... } Market very unsettled. See *Trade Report.*

Annealed Wire on Spools.....
60&10@60&10&5%
Brass, list Feb. 26, '96.....20%
Copper, list Feb. 26, '96.....20%
Cast Steel Wire.....50%
Malin's Ann'd & Tin'd on Spools .60&20%
Malin's Brass & Cop. on Spools....50&10%
Steel Music Wire, 12 to 30, imported .....
60@70¢ ₱ lb
Stubs' Steel Wire.....$6.00 to £, 40%
Wire Clothes Line, see *Lines.*
Wire Picture Cord, see *Cord.*

Bright Wire Goods—

Iron and Brass.....90%

Wire Cloth and Netting—

Galvanized Wire Netting.....
80&10@80&10&10%
Painted Screen Cloth ₱ 100 ft..95@1.10¢
See *Trade Report.*

Wire Barb—See *Trade Report.*

Wire, Rope—See *Rope, Wire.*

Wrenches—

Agricultural.....80&5@80&10%
Baxter's S.....70@70&5%
Coes' Genuine.....40&10&5&3&3%
Coes' "Mechanics'".....40&10&10&5&3%
Acme.....60@60&5%
Aiken's Pocket (Bright).....$2.00@3.20
Alligator.....70@70&10%
Bemis & Call's:
Adjustable S.....35&5%
Adjustable, P.....40%
Brigg's Pattern.....40&10%
Combination Black.....40&10%
Combination Bright.....40&5%
Cylinder or Gas Pipe.....55%
Extra Heavy.....45%
Merrick's Pattern.....50%
No. 3 Pipe, Bright.....50%
Bit Wrench, Adj., Tatum's.....
₱ doz. $2.25.. .25&10%
Boardman's.....33⅓%
Bull Dog, W. & B.....70@70&10%
Cincinnati Brace Wrenches.....25&10%
Donohue's Engineer.....40&10%
Eagle.....50&10%
Hercules.....70&10@75%
Stevenson.....60&10&10%
Tatum's Brace Socket.....40%
W. & B. Machinists' Knife Hdle.....
50&10@50&10&7½%
W. & B. All Steel Pipe.....50&10@60%
W. & B. Drop Forged Engineers'.....
35@40&10%

Wrought Goods—

Staples, Hooks, &c., list March 17, '92 90@90&10%

Yokes, Neck—

Covert Saddlery Works, Trimmed.70%
Covert Saddlery Works, Neck Yoke Centers.....70%

Yokes, Ox, and Ox Bows—

Fort Madison's Farmers' & Freighters'... 20%

PAINTS, OILS AND COLORS.—Wholesale Prices.

White Lead, Zinc, &c.

Lead, Foreign white, in Oil.... 8 @ 8¾
Lead, American White, in Oil:
Lots of 500 lb or over..... 5¼@ 5¾
Lots less than 500 lb..... @ 6¼
Lead, White, in oil, 25 lb tin pails, add to keg price..... @ ½
Lead, White, in oil, 12½ lb tin pails, add to keg price..... @ 1
Lead, White, in oil, 1 to 5 lb assorted tins, add to keg price.... @ 1½
Lead White, Dry in bbls..... @ 5
Lead, American. Terms: On lots of 500 lbs. and over, 60 days, or 2% for cash if paid in 15 days from date of invoice.
Zinc, American, dry..... ₱ lb 3¼@ 4½
Zinc, French S. & B. Red Seal.... @ 7½
Zinc, French, S. & B. Green Seal ...@7 7-10
Zinc, Paris, Red Seal..... @ 8½
Zinc, Paris, Green Seal..... @ 9½
Zinc, Antwerp, Red Seal..... @ 7½
Zinc, Antwerp, Green Seal..... @ 8½
Zinc, V. M. in Poppy Oil, G. Seal lots of 1 ton and over..... @10½
lots less than 1 ton..... @10¾
Zinc, V. M. in Poppy Oil, Red Seal, lots of 1 ton and over..... @ 9½
lots of less than 1 ton..... @ 9¾
Discounts.—V. M. French Zinc.—Discounts to buyers of 10 bbl. lots of one or assorted grades, 1%; 25 bbls., 2%; 50 bbls., 4%. No discount allowed on less than 10 bbl. lots.

Dry Colors.

Black, Carbon.....₱ lb 5 @40
Black, Drop, Amer..... 2½@ 5
Black, Drop, Eng..... 5 @10
Black, Ivory..... 10 @20
Blue, Celestial..... ₱ lb 6 @ 8
Blue, Chinese.....30 @35
Blue, Prussian.....28 @32
Blue, Ultramarine..... 5 @30
Brown, Spanish..... ½@ 1
Brown, Vandyke, Amer..... 1¾@ 2½
Brown, Vandyke, Foreign..... 2½@ 5
Carmine, No. 40, in bulk.....$2.20@2.25
Carmine, No. 40, in lb bottles. 2.35@ ..
Carmine, No. 40, in ounce bot. 3.50@3.60
Green, Chrome, ordinary..... 2 @10
Green, Chrome, pure.....18 @24
Lead, Red, bbls. and ½ bbls.... .. @ 5½
Lead, Red, kegs..... @ 5¾
Litharge, bbls. and ½ bbls..... @ 5½
Litharge, kegs..... @ 5¾
Ocher, French Washed..... @ 1¾
Ocher, German Washed..... 4½@ 5
Ocher, American.....₱ ton $8.00@17.00
Orange Mineral, English..₱ lb 8½@ 9½
Orange Mineral, French.....10½@10¾
Orange Mineral, German..... 8½@ 8¾
Orange Mineral, American .... @ 7¾
Red, Indian, English..... 4½@ 8½
Red, Indian, American..... 2½@ 3
Red, Turkey..... 4½@ 8
Red, Tuscan..... 7 @14
Red, Venetian, Amer..₱ 100 lb.60 @70
Red, Venetian, English.....$1.05@2.00
Sienna, Italian, Burnt and Powdered.....₱ lb 4 @ 9½
Sienna, Ital., Raw, Powd..... 2½@ 7
Sienna, American, Raw..... 1¼@ 1½
Sienna, American, Burnt and Powdered.....₱ lb 1¼@ 1½
Talc, French.....₱ 100 lb 90 @1.50
Talc, American.....40 @65
Terra Alba, French, ₱ 100 lb .. 90 @1.00
Terra Alba, English..... 75 @80
Terra Alba, American No. 1.... 5 @75
Terra Alba, American No. 2....45 @50
Umber, Turkey, Bnt. & Pow. ₱ lb 2½@ 3
Umber, Turkey, Raw & Powd. 2½@ 3
Umber, Bnt. Amer..... 1¼@ 1½
Umber, Raw, Amer..... 1½@ 1½
Yellow, Chrome.....10 @25
Vermilion, American Lead.... @10
Vermilion, Quicksilver, bbls. or kegs..... @61
Vermilion, Quicksilver, bags.... @62
Vermilion, Quicks'r, sm'r pkgs... @67
Vermilion, English, Import... 70 @75
Vermilion, Artificial..... 5 @20
Vermilion Chinese.....70 @75

Colors in Oil.

Black, Lampblack, Best..... 10 @13
Black, Lampblack, Common.. 7 @ 9
Blue, Chinese..... 35 @40
Blue, Prussian.....25 @35
Blue, Ultramarine.....16 @20
Brown, Vandyke..... 7 @12
Green, Chrome..... 7 @11
Green, Paris.....17 @22
Sienna, Raw..... 7 @10
Sienna, Burnt..... 7 @10
Umber, Raw..... 6 @10
Umber, Burnt..... 7 @10

Miscellaneous.

Barytes, Foreign, ₱ ton....$20.00@23.00
Barytes, Amer. floated..... 18.00@20.00
Barytes, Crude..... 8.00@10.00
Chalk, in bulk.....₱ ton 2.00@ ..
Chalk, in bbls.....₱ 100 lb 35@ ..
China Clay, English..₱ ton 10.00@17.50
Cobalt, Oxide.....₱ 100 lb ....@ 1.70
Whiting, Common. ₱ 100 lb .30@ .40
Whiting, Gilders'..... .40@ .45
Whiting, extra Gilders'.... @ 55%
Paris Green:
Arsenic, kegs or casks.....12
Kegs, 100 lb @ 175 lb.....12½
Kits, 14, 28, 56 lb.....13½
Paper Boxes, 2 @ 5 lb.....13½
Paper Boxes, 1 lb.....14
Paper Boxes, ½ lb.....15
Paper Boxes, ¼ lb.....16

Putty.

In barrels and ½ bbls..... 1 4-10@ 1½
In tubs.....1½@1 6-10
In tin cans..... 1½@ 2
In bladders..... 1½@ 2

Spirits Turpentine.

In Southern bbls..... @47½¢
In machine bbls..... @48 ¢

Glue.

Low Grade.....₱ lb 7 @ 9
Cabinet.....11 @15
Medium White.....10 @15
Extra White.....15 @25
French.....10 @25
Irish.....10 @12½

Animal Fish and Vegetable Oils.

Linseed, City, raw.....₱ gal. 45 @46
Linseed, City, boiled.....47 @48
Linseed, Western, raw ..... 44 @45
Linseed raw Calcutta seed..... @56
Lard, Prime City, present make 44 @46
Lard, City, Extra No. 1..... 5 @47
Lard, City, No. 1..... 39 @41
Cotton-seed, Crude.....17 @19
Cotton-seed, Summer Yellow, prime..... 23 @23½
Cotton-seed Summer Yellow, off grades..... 21½@22
Sperm, Crude..... @55
Sperm, Natural Spring.....57 @59
Sperm, Bleached Spring.....61 @63
Sperm, Natural Winter..... @62
Sperm, Bleached Winter..... @65
Whale, Crude..... @40
Whale, Natural Winter..... @48
Whale, Bleached Winter..... @50
Whale, Extra Bleached Win..... @52
Menhaden, Crude, Sound..... 22 @23
Menhaden, Light Pressed..... 27 @28
Menhaden, Bleached Winter..... @ ..
Menhaden, Extra Bleached.....34 @ ..
Tallow, Western, prime.....40 @41
Cocoanut, Ceylon..... @ 6¼
Cocoanut, Cochin..... @ 6¾
Cod, Domestic..... @35
Cod, Newfoundland.....31 @34
Red Elaine.....28 @30
Red Saponified.....₱ lb 3½@ 3¾
Bank.....₱ gal. .. @26
Straits..... @26
Olive, Italian, bbls.....56 @58
Neatsfoot, prime.....40 @42
Palm, prime, Lagos.....₱ lb 5 @ 5¼

Mineral Oils.

Black, 29 gravity, 25@30 cold test.....₱ gal. .. @ 7½
Black, 29 gravity, 15 cold test. .. @ 8½
Black, summer..... @ 7
Cylinder, light filtered..... @15½
Cylinder, dark filtered..... @16
Paraffine, 23@24 gravity..... @ 9½
Paraffine, 25 gravity..... @ 8½
Paraffine, 28 gravity..... @ 7½
Paraffine, red, No. 1..... @ 9
In small lots ½¢ advance.

THE IRON AGE.

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CURRENT METAL PRICES.

MARCH 22, 1899.

The following quotations are for small lots. Wholesale prices, at which large lots only can be bought, are given elsewhere in our weekly market report.

IRON AND STEEL—

Bar Iron from Store—

Common Iron: Duty, Round, 0.6¢ ₩ ℔; Square, 0.8¢ ₩ ℔

¾ to 2 in. round and square; 1 to 6 in. x ⅜ to 1 in.	₩ ℔ 1.60¢ @ 1.70¢
Refined Iron: ¾ to 2 in. round and square; 1 to 4 in. x ¾ to 1½ in.	₩ ℔ 1.75¢ @ 1.85¢
4½ to 6 in. x ¾ to 1-in.; 1 to 6 in. x ¼ and 5-16	₩ ℔ 1.95¢ @ 2.05¢
Angles	1.90¢
Tees	2.10¢
Beams	2.00¢
Channels	2.00¢
Rods—¾ and 11-16 round and sq'e.	₩ ℔ 1.85¢ @ 1.95¢
Bands—1 to 6 x 3-16 to No. 12	₩ ℔ 2.30¢ @ 2.45¢
"Burden's Best" Iron, base price	₩ ℔ 2.70¢
Burden's "H. B. & S. Iron, base price	₩ ℔ 2.50¢
"Ulster"	₩ ℔ 2.50¢
Norway Bars	3.50 @ 4.00¢
Norway Shapes	4.00 @ 4.25¢

Merchant Steel from Store—

	per ℔
Open Hearth and Bessemer Machinery	2.00 to 2.10¢
Toe Calk, Tire and Sleigh Shoe	2¼ to 2½¢
Best Cast Steel, base price in small lots	7 ¢
Best Cast Steel Machinery, base price in small lots	5 ¢

Soft Steel Sheets—

¼ inch	2 10¢	No. 14	2.50¢
3-16 inch	2.40¢	No. 16	2.55¢
No. 8	2.40¢	No. 18	2.65¢
No. 10	2.40¢	No. 20	2.75¢
No. 12	2.45¢	No. 22	2.85¢

Sheet Iron from Store.

Black.

	Common American.	R. G. Cleaned American.
Nos. 10 to 16	₩ ℔, 2.30	2.50¢
Nos. 17 to 21	₩ ℔, 2.40	2.60¢
Nos. 22 to 24	₩ ℔, 2.50	2.70¢
Nos. 25 and 26	₩ ℔, 2.60	2.80¢
No. 27	₩ ℔, 2.70	2.90¢
No. 28	₩ ℔, 2.80	3.00¢

Russia, Planished, &c.

Genuine Russia, according to assortment	₩ ℔ 10½¢
Patent Planished	₩ ℔ A, 9¾¢; B, 8¾¢, net.
Patent Planished Sheet Steel	₩ ℔ 8½¢

Galvanized.

	B. B.
Nos. 10 to 16	₩ ℔, 12¢
Nos. 17 to 21	₩ ℔, 13¢
Nos. 22 to 24	₩ ℔, 14¢
Nos. 25 to 26	₩ ℔, 15¢
No. 27	₩ ℔, 16¢
No. 28	₩ ℔, 17¢
No. 29	₩ ℔, 19¢
No. 30	₩ ℔, 21¢

70&5% off.

36 in. 1¢ ₩ ℔ higher.

Foreign Steel from Store—

Best Cast	₩ ℔ 14 ¢
Extra Cast	₩ ℔ 16½ @ 17 ¢
Swaged, Cast	₩ ℔ 16 ¢
Best Double Shear	₩ ℔ 14 ¢
Blister, 1st quality	₩ ℔ 12 ¢
German Steel, Best	₩ ℔ 10 ¢
2d quality	₩ ℔ 9 ¢
3d quality	₩ ℔ 8 ¢
Sheet Cast Steel, 1st quality	₩ ℔ 14 ¢
2d quality	₩ ℔ 13 ¢
3d quality	₩ ℔ 11 ¢
R. Mushet's "Special"	₩ ℔ 46 ¢
" " " Annealed	₩ ℔ 75 ¢
" " "Titanic"	₩ ℔ 19 ¢
Hobson's Choice XX Extra Best	₩ ℔ 35 ¢
Jessop Self Hardening	₩ ℔ 40 ¢
Seamans' "Nelson" Steel	40 ¢
Hobson Self-Hardening	₩ ℔ 40 ¢

METALS—

Tin—

Duty.—Pigs, Bars and Block. Free.	Per ℔
Banca, Pigs	26¼¢
Straits, Pigs	25¼¢
Straits in Bars	26¼¢

Tin Plates—

American Charcoal Plates.

Calland Grade: IC, 14 x 20	$6.25@6.50
IX, 14 x 20	7.75@8.00
Melyn Grade: IC, 14 x 20	6.00
IX, 14 x 20	7.25
Aliaway Grade: IC, 14 x 20	5.00@5.25
IX, 14 x 20	6.00@6.25

American Coke Plates—Bright—

IC, 14 x 20 108 ℔	$4.50@4.60
IX, 14 x 20	5.40@5.50
IXX, 14 x 20	6.05@6.15

American Terne Plates—

IC, 20 x 28	$8.50
IX, 20 x 28	11.00

Tin Boiler Plates, American—

IXX, 14 x 26	112 sheets	$10.50
IXX, 14 x 28	112 sheets	11.45
IXX, 14 x 31	112 sheets	12.65

Copper—

DUTY: Pig, Bar and Ingot and Old Copper free Manufactured, 2½¢ ₩ lb.

Ingot—

Lake	19¢
Ansonia grade Casting	18@18¼¢

Sheet and Bolt—

February 2, 1899. Prices, in cents per pound. Net.

Sheet 30 x 60.

Not wider than	Not longer than	And longer than	64 oz. & over, 30 lb. sheet, 30 x 60 and heavier.	32 oz. to 64 oz. 25 to 50 lb.	24 oz. to 30 oz. 18¾ to 25 lb.	16 oz. to 24 oz. 12½ to 18¾ lb.	14 oz. and 15 oz. 11 to 12½ lb.	12 oz. and 13 oz. 9½ to 11 lb.	10 oz. and 11 oz. 7¾ to 9½ lb.	8 oz. and 9 oz. 6¼ to 7¾ lb.	Lighter than 8 oz.
Ins.	Ins.	Ins.									
30	72	.....	21½	21½	21½	21½	22½	23½	24½	27½	30½
30	96	72	21½	21½	21½	21½	22½	24½	27½	30½	
30	.....	96	21½	21½	21½	21½	23½	27½			
36	72	.....	21½	21½	21½	21½	23½	25½	28½	31½	
36	96	72	21½	21½	21½	21½	23½	27½	30½		
36	120	96	27½	21½	21½	22½	24½				
36	.....	120	21½	21½	22½	23½					
48	72	.....	21½	21½	22½	23½	25½	28½	31½		
48	96	72	21½	21½	22½	24½	26½	29½			
48	120	96	21½	21½	23½	25½	29½				
48	.....	120	21½	22½	24½	27½					
60	72	.....	21½	22½	22½	24½	27½	32½			
60	96	72	21½	21½	23½	25½	30½				
60	120	96	21½	22½	24½	27½					
60	.....	120	21½	23½	25½	29½					
72	96	.....	21½	22½	24½	27½					
72	144	96	21½	23½	26½	31½					
72	.....	144	22½	24½	29½						
108	120	.....	22½	24½	30½						
108	.....	120	24½	25½							
wider than 108	144	.....	25½	27½							
	.....	144	26½	29½							

Bolt Copper, ⅜ inch diameter and over, ₩ ℔ 21½¢

Circles, Segments and Pattern Sheets, 3¢ ₩ ℔ advance over price of Sheet Copper required to cut them from.

Cold or Hard Rolled Copper 14 oz. ₩ square foot and heavier, 1¢ ₩ ℔ over the foregoing prices.

Cold or Hard Rolled Copper, lighter than 14 oz. ₩ square foot, 2¢ ₩ ℔ over the foregoing prices.

All Polished Copper, 20 in. wide and under, 1¢ ₩ ℔ advance over the price for Cold Rolled Copper.

All Polished Copper, over 20 in. wide, 2¢ ₩ ℔ advance over the price for Cold Rolled Copper.

Planished Copper—

1¢ ₩ ℔ more than Polished Copper.

Copper Bottoms, Pits and Flats—

14 oz. to square foot and heavier, ₩ ℔	25½¢
12 oz. and up to 14 oz. to square foot, ₩ ℔	26½¢
10 oz. and up to 12 oz., ₩ ℔	28½¢
Lighter than 10 oz., ₩ ℔	31½¢

Circles less than 8 in. diameter, 2¢ ₩ ℔ additional.

Circles over 13 in. diameter are not classed as Copper Bottoms.

Copper Wire—

Hard and Soft Drawn—B. & S. Gauge.

Nos.	0000 to 8	9 and 10	11 and 12
	20¢	20½¢	20½¢
Nos.	13	14	15 16
	20½¢	20½¢	21¢ 21½¢
Nos.	17	18	19 20
	21½¢	22¢	22½¢ 23¼¢

Seamless Brass Tubes—

Standard always Stubs' gauge, unless otherwise ordered.

Feb. 6, 1899. Net. Outside Diameter.

Stubs' W.G.	B. & S. W.G.	¼	5-16	⅜	7-16	½	9-16	⅝	¾	⅞	1	1¼	1½
4-11	3-0	...	.....	...	.....	31	29	28	27	26	25	23	22
12	10	...	.....	35	33	31	29	28	27	26	25	23	22
13	11	...	.....	35	33	31	29	28	27	26	25	23	22
14	12	...	39	35	33	31	29	28	27	26	25	23	22
15	13	...	40	36	34	31	30	29	28	28	26	24	23
16	14	...	41	37	35	32	31	30	29	28	27	24	23
17	15	...	42	38	36	33	32	31	30	29	28	25	24
18	16	59	44	40	37	34	33	32	30	29	28	26	25
19	17	60	45	41	38	35	34	33	32	31	30	28	27
20	18-19	62	47	42	39	37	36	35	34	33	32	30	29
21	20	64	49	44	41	39	38	37	36	35	34	31	30
22	21	69	54	46	43	40	39	38	37	36	35	33	32
23	22	74	59	48	44	42	41	40	39	38	37	37	37
24	23	79	64	53	46	44	43	42	41	39	38	38	39
25	24	84	69	54	49	47	45	44	43	42	41	40	43

Copper Bronze and Gilding Tube, 8¢ ₩ ℔ additional

Add 5¢ ₩ ℔ for Tubes ¼ inch thick or thicker.

Iron Pipe Sizes—Brass

⅛ ¼ ⅜ ½ ¾ 1 1¼ 1½ 2 2½ 3 3½ 4 4½ 5 6 inch

84 30 27 25 19 19 19 19 19 19 19 21 21 23 25 29 ₩ ℔

Copper, Bronze or Gilding Tubes, 3¢ ₩ ℔ additional.

Brazed Brass Tubing.

(*To No. 19, inclusive.*) Feb. 26 1896

Brown & Sharpe's gauge standard.

	Per ℔.
Plain Round Tube, ¼ in. up to 2 in.	$0.35
" ⅜ " " ¾ "	.36
" ½ " " ⅞ "	.38
" ⅝ " " 1 "	.41
" 5-16 " " 1¼ "	.48
" ¼ " " 5-16"	.65
" 3-16 " " ¼ "	1.00
" ⅛ " " 3-16 "	1.50
Smaller than ¼ inch	Special
3 inch and larger	.40
Over 3 inch to 3½ inch, inclusive	.45
Over 3½ inch	.50

Bronze and Copper, advance on Brass List, 3 cents.

Discount from list 35%

Roll and Sheet Brass—

(*Brown & Sharpe Standard Gauge.*)

Common High Brass	in.	in.	in.	in.	in.	in.	in.	in.	in.
Wider than and including	2 12	12 14	14 16	16 18	18 20	20 22	22 24	24 26	26 40
To No. 20, inclusive	.22	.23	.25	.27	.29	.31	.33	.36	.40
Nos. 21, 22, 23 and 24	.22	.24	.26	.28	.30	.32	.34	.37	.42
Nos. 25 and 26	.23	.24½	.27	.29	.31	.33	.35	.38	.43
Nos. 27 and 28	.23	.25	.28	.30	.32	.34	.36	.39	.45
Common High Brass	in.	in.	in.	in.	in.	in.	in.	in.	
Wider than and including	26 28	28 30	30 32	32 34	34 36	36 38	38 40		
To No. 20, inclusive	.39	.42	.46	.50	.55	.60	.65	*	
Nos. 21, 22, 23 and 24	.40	.43	.47	.51	.56	.61	.68		
Nos. 25 and 26	.41	.44	.48	.52	.57	.63	.71		
Nos. 27 and 28	.42	.45	.49	.53	.58	.65	.75		

* Special prices not less than 80 cents.

Add ½¢ ₩ ℔ additional for each number thinner than Nos. 28 to 38 inclusive. Discount from List 20%

Wire in Coils. List February 26, 1896.

Brown & Sharpe's gauge the standard.	Com. high brass.	Low brass.	Gild'g bronze and copper
All Nos. to No. 10, inclusive	$0.23	$0.27	$0.28
Above No. 10 to No. 16	.23½	.27½	.28½
No. 17 and No. 18	.24	.28	.29
No. 19 and No. 20	.25	.29	.30
No. 21	.26	.30	.34
No. 22	.27	.31	.35
No. 23	.28	.32	.36
No. 24	.30	.34	.38
No. 25	.32	.36	.40
No. 26	.35	.39	.43
No. 27	.38	.42	.46
No. 28	.42	.46	.51
No. 29	.45	.49	.54
No. 30	.48	.52	.59
No. 31	.51	.55	.67
No. 32	.55	.59	.79
No. 33	.59	.63	.82
No. 34	.64	.68	.95
No. 35	.70	.74	1.30
No. 36	.76	.80	1.50
No. 37	1.00	1.04	1.70
No. 38	1.30	1.34	2.00
No. 39	2.00	2.00	3.25
No. 40	2.60	2.60	5.75

Discount, Brass Wire, 20%; Copper Wire, NET. List November 16, 96.

Spring Wire, 2¢ ₩ ℔ advance.

Spelter—Duty: In Blocks or Pigs, 1¢ ₩ ℔.

Western Spelter 6¾@7¢

Zinc.

Duty: Sheet, 2¢ ₩ ℔.

600 ℔ casks 7¾¢ | Per ℔ 8¼¢

Lead.

Duty: Pigs and Bars and Old, 2½¢ ₩ ℔. Pipe and Sheets, 2½¢ ₩ ℔.

American Pig	4½@5¢
Bar	6¢
Pipe (full lengths), subject to discount 20%	6¾¢
Pipe cut lengths), subject to discount 20%	7¾¢
Tin Lined Pipe, subject to discount 20%	12½¢
Block Tin Pipe, subject to discount 20%	87½¢
Sheet (full rolls) subject to discount 20%	7¾¢
Sheet (cut rolls (subject to discount 20%	8¾¢

Old Lead in exchange, 4¢ ₩ ℔.

Solder.

½ & ¼ guaranteed	16¼¢
No. 1	15@16¼¢

Prices of Solder indicated by private brand vary according to composition.

Antimony—

Duty, ¾¢ ₩ lb.

Cookson	₩ ℔ 11½@12¢
Hallett's	₩ ℔ 10½@10¾¢
U. S.	₩ ℔ 10½@10¾¢

Aluminum—

Duty: Crude, 8¢ ₩ ℔. Plates, Sheets, Bars and Rods 15¢ ₩ ℔.

No. 1 Aluminum (guaranteed over 99% pure), in ingots for remelting: Small lots	₩ ℔ 37¢
100-℔ lots	₩ ℔ 35¢
No. 2 Aluminum (guaranteed to be over 90% pure), in ingots for remelting: Small lots	₩ ℔ 34¢
100-℔ lots	₩ ℔ 33¢

Special casting Alloy, containing over 80% pure Aluminum: Small lots ₩ ℔ 35¢ | 100-℔ lots ₩ ℔ 30¢

Aluminum Rods, from ¾-in. diam. to 1 in. diam. ₩ ℔ 53¢

Aluminum Sheet, B. & S. gauge. 50 ℔ or more.

Wider than	6-in.	14-in.	24-in.
And including	14-in.	24-in.	30-in.
	₩ ℔.	₩ ℔.	₩ ℔
Nos. 13 to 19	$0.38	$0.40	$0.43
No. 20	.40	.42	.45
Nos. 21 to 23	.42	.44	.47
No. 24	.42	.46	.49
No. 25	.43	.47	.50
No. 26	.43	.50	.55
No. 27	.44	.53	.58
No. 28	.44	.53	.60
No. 29	.45	.56	.65
No. 30	.46	.60	.78

Note.—Lots of less than 50 ℔ 5¢ ₩ ℔ extra.

Aluminum Wire, B. & S. Gauge.

Larger than No. 1	₩ ℔ 55¢	No. 17 to No. 20	₩ ℔ 80¢
No. 1 to No. 8	₩ ℔ 60¢	No. 21	₩ ℔ $1.15
No. 9 to No. 16	₩ ℔ 65¢		

Old Metals.

Dealers' Purchasing Prices Paid in New York.

Heavy Copper	₩ ℔ 14½¢
Light and Tinned Copper	₩ ℔ 13½¢
Heavy Brass	₩ ℔ 10 ¢
Light Brass	₩ ℔ 8½¢
Lead	₩ ℔ 3½¢
Tea Lead	₩ ℔ 4½¢
Zinc	₩ ℔ 4½¢
No. 1 Pewter	₩ ℔ 16 ¢
No. 2 Pewter	₩ ℔ 9 ¢
Tin Plate Scrap	₩ ton $8.50
Wrought Scrap Iron	₩ gross ton $9.25
Heavy Cast Scrap	₩ gross ton $8.50
Stove Plate Scrap	₩ gross ton $6.00
Burnt Iron	₩ gross ton $3.75